ANALYSIS OF FACTORS AFFECTING PARTICIPATION OF FACULTY AND CHOICE OF STRATEGIES FOR THE INTERNATIONALIZATION OF THE UNDERGRADUATE AGRICULTURAL CURRICULUM: THE CASE IN TWO LAND GRANT UNIVERSITIES

A Dissertation

by

MARIA NAVARRO

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2004

Major Subject: Agricultural Education

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Approved as to style and content by:

James E. Christiansen (Chair of Committee)	Gary E. Briers (Member)
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ABSTRACT

Analysis of Factors Affecting Participation of Faculty and Choice of Strategies for the Internationalization of the Undergraduate Agricultural Curriculum:
The Case in Two Land Grant Universities. (May 2004)
Maria Navarro, B.S., Universitat Politècnica de Catalunya
Chair of Advisory Committee: Dr. James E. Christiansen

To adapt to the new global system, internationalization is increasingly being accepted as a necessity in higher education. Although the process involves the research, service, and education components of academic institutions, many authors have contended that the internationalization of the curriculum is the most important component of the process and that faculty are its main drivers and actors. While a number of the issues involving internationalization are very well documented, there is still little published information regarding the perspectives of random samples of faculty regarding strategies by which to internationalize the undergraduate curriculum.

The purpose of this study was to analyze perspectives of faculty in two land grant colleges of agriculture regarding academic and institutional strategies for the internationalization of the undergraduate agricultural curriculum. A mixed method research approach was used to gather data, combining the use of a questionnaire with both quantitative and open-ended questions sent to a census of the teaching faculty of the two colleges, and conducting eight one-hour interviews. The researcher also carried out an in-depth assessment of the effect of nonresponse error in the study by using and comparing various methods of nonresponse analysis.

Faculty knowledge of international issues was positively correlated with their participation in the internationalization process. Knowledge and participation were, in turn, positively correlated with faculty perceptions of relevance of internationalization of the curriculum, and with faculty acceptance of most of the proposed academic and institutional strategies for internationalization. Faculty ranked mobility and infusion

approaches as their preferred academic strategies for internationalization of the curriculum, and there were clear patterns of associations between selections by faculty, with mobility and infusion belonging to different groups. When asked about incentives to participate in the internationalization process, faculty mentioned funds, “real” recognition, and release time as their foremost choices. Also, faculty expressed a need for increased leadership, vision, and focus for the process. When looking at the academic and institutional strategies together, various patterns of association also appeared, reiterating the notion that there is not a single best approach to internationalization, but that multiple and complementary strategies are needed.

To my family.

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CHAPTER I

INTRODUCTION

> Everything has changed but our ways of thinking, and if these do not change we drift toward unparalleled catastrophe.
> – Albert Einstein

Globalization is one of the words most commonly used when describing today's and tomorrow's world. It "has spawned a wide spectrum of impacts and interactions, both expected and unexpected" (Boyer, Brown, Butler, Florea, Weir, Mayall, & Johnson, 2002, p. 1), welcomed and not welcomed, affecting interconnectedness and interdependency among nations and peoples of the world, and impacting economic issues, market mechanisms, political systems, the environment, education, social systems, culture, health, food security, population issues, technology, transportation, communication, world stability and security, among others (Groennings & Wiley, 1990; McPherson, 1999).

Brit Kirwan, president of The Ohio State University, indicated that among the few things that are certain in this era of globalization is “the necessity for our colleges and universities to make the fact of internationalization and globalization a greater, deeper, broader and richer part of everything we do” (2000, p. 1). As mentioned by Kirwan, along with the term globalization comes the concept of internationalization of higher education, which is understood by many as “the way a country’s higher education system responds to the impact of globalization” (Knight, as cited in Association of Universities and Colleges of Canada [AUCC], 1998, p. 1). For decades, political and educational leaders have pleaded for further internationalization in U.S. higher education (Boyer, 1994; Hamrick, 1999; Rahman & Kopp, 1992), arguing that internationalization is "a pressure no one who teaches can be unaware of" (Halliday, 1999, p. 99) and that “failing to internationalize the curriculum now and later finding that

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it *was* necessary may waste an entire generation of students, who will be denied the choices that would give them some control over their lives and careers" (Mestenhauser, 1998, p. 35).

The rationales for the need to internationalize higher education further are diverse, and include preparing students for productive careers and lives (American Council on Education [ACE], 2002b; Ellingboe, 1997b; Globalizing Agricultural Science and Education Programs for America [GASEPA], 1999; Goodman, 1999; Johnson, von Bargen, & Schinstock, 1995; Knight & de Wit, 1999; Kunkel, Maw, & Skaggs, 1996; Shetty & Rudell, 2000), increasing the quality of higher education institutions (Bremer & van der Wende, 1995; de Wit, 2002; Etling, 2001; Harari, 1992; Knight & de Wit, 1999; Liverpool, 1995; Smith, 1994), enhancing national economic competitiveness (ACE, 1996; Hamrick, 1999; Johnston & Eldestein, 1993; Leibold, 1997; Lyman, 1995), strengthening political advantage (Alladin, 1992; Groennings & Wiley, 1990), responding to the rising interdependent nature of the world (Carter, 1992; Knight, 1997a; Rahman & Kopp; 1992), and promoting peace and tolerance (de Wit, 2002; Harari, 1989).

"The internationalization of higher education is still a phenomenon with a lot of question marks regarding . . . its meaning, concept, and strategic aspects" (de Wit, 2002, p. xv). "For a better understanding of the internationalization of higher education it is important . . . to provide a working definition of its meaning" (de Wit, 2002, pp. 103-104). A definition accepted by many scholars describes internationalization of higher education as "the process which [*sic*] integrates an international or intercultural dimension or perspective into the major functions of the universities, namely teaching, research, and service" (International Association of Universities [IAU], 1997, p. 1).

For years, many authors have stated that the primary component of a campus's internationalization strategy is the curriculum (ACE, 2002b; Ellingboe, 1997a, 1997b; Fortin, 2001; Groennings & Wiley, 1990; Harari, 1989; Klasek, 1992a; Knight, 1997a; Lambert, 1989; Liverpool, 1995; Mestenhauser, 1998; Tonkin & Edwards, 1981), and today most agree to define internationalization of the curriculum as *a process*, a process of integration, a multifaceted package of educational reform (AUCC, 2000; de Wit, 1995, 2002; Ellingboe, 1997a, 1997b; Fortin, 2001; Groennings & Wiley, 1990;

Harari, 1989, 1992; Klasek, 1992a; Knight, 1997a; Lambert, 1989; Mestenhauser, 1998; Tonkin & Edwards, 1981). One broadly accepted definition for internationalization of the curriculum is the one offered by van der Wende (as cited in AUCC, 2000):

> [Internationalization of the curriculum is] the process of curriculum development or change that is aimed at integrating an international dimension into the formal and operational aspects of the curriculum where formal refers to course content and materials and operational to teaching and learning methods, grouping of students, the place and time of courses, etc. (p. 4)

One of the questions today is about who is going to commit to promote further, support, implement, and evaluate this process. In principle, anyone can do it, just as Charles Klasek (1992b) posited:

> Attitude, character, spirit, and passion an international university can make. The spark can begin anywhere – in the individual on campus charged with the international programs, in a faculty member, in the President, or in the students. The flames occur when individual programs begin to evolve and mature, and the fire consumes the institution when programs come together and sweep the university. (p. 206)

There seems to be most agreement among internationalization scholars that the process of internationalization should develop top-down and bottom-up simultaneously, with one or the other being dominant, depending on the specific environment of each institution (Leibowitz, Farren, & Kaye, 1986). The top-down approach implies that the process should start with an institutional *commitment* (ACE, 1996; Association of International Education Administrators [AIEA], 1995b; Ellingboe, 1997b; Groennings & Wiley, 1990; Harari, 1992; Pickert, 1992; Shetty & Rudell, 2000) to make internationalization a priority (e.g., including it in the university's strategic plan) and actively support faculty in their efforts (e.g., devote enough resources, recognize successful programs, give incentives). The process will then continue through a more bottom-up approach, led by the faculty, who are, in essence, "the major agents of change in reforming curricula, renewing themselves, and improving instruction" (Lunde, 1995c, p. 2; see also Acker, 1989; AIEA, 1995a; Baker & Thomas, 1995; Hayes, 1995a; Henson & Noel, 1989; Kunkel, Maw, & Skaggs, 1996; Lunde, 1995b; Vietor, John,

Thompson & Kunkel, 1996), and are a very important source of creativity (Beattie, 1983, as cited in Singha, Skaggs, & Nelson, 1996). In fact, when reviewing internationalization programs, scholars have found that faculty are always at the core of any successful endeavor (AIEA, 1995b; Carter, 1992; Emory University Office of International Affairs [EUOIA], 1995; Leibold, 1997; Liverpool, 1995; National Association of State Universities and Land-Grant Colleges [NASULGC], 1993).

There are many factors that affect participation of individual faculty in the internationalization of the curriculum. Some of these factors have to do with the context and resources in which and with which faculty work; others involve knowledge, and others are perceptions and attitudes. Some examples are: 1. The context in which faculty are working (cultural environment, institution, society, students, stakeholders), 2. the level of support from the administration (EUOIA, 1995; Goolrick, 1995; Harari, 1992; Liverpool, 1995; Lunde, Baker, Buelow, & Hayes, 1995a; Singha, Skaggs, & Nelson, 1994), 3. faculty's priorities, interest, motivation, commitment to change, perspectives, and value given to internationalization (Kwok & Arpan; Leibold, 1997; Singha, Skaggs, & Nelson, 1996), 4. the present state of the curriculum and value given to different directions for change and internationalization models and strategies (Kezar, 2000; Shetty & Rudell, 2000), 5. incentives for personal involvement (AIEA, 1995b; Carter, 1992; Etling, 2001; EUOIA, 1995; Hamrick, 1999; NASULGC, 1993), 6. "intellectual" and development possibilities (EUOIA, 1995; Hamrick, 1999; Harari, 1992; Leibold, 1997; Lunde, 1995a, 1995b; Wood, 1995, as cited in EUOIA, 1995), 7. resources, and 8. (perceived) needs, among others.

1. STATEMENT OF THE PROBLEM

In order to be prepared to live and compete in a dynamic workplace of an increasingly global and interdependent society, university students need to learn about and be exposed to the changing international environment. It is the duty of the higher education community to address *better* these needs (AIEA, 1995a; Association of American Colleges [AAC], 1985; Council on International Education Exchange [CIEE], 1988, 1990; Hawkins, Haro, Kazanjian, Merkx & Wiley, 1998; Mestenhauser & Ellingboe, 1998).

Particularly, the agricultural, food, and environmental sciences have changed radically in the past decades and have stood out as playing an especially important role worldwide, socially, politically, and economically. Consequently, colleges of agriculture "will be asked to respond" (Kunkel, Maw & Skaggs, 1996, p. vii) and "aggressively globalize their teaching, research, and outreach programs" (Jischke, Topel & Acker, 1999, p. 7), not only to continue serving their students, and to serve them *better*, but also for society as a whole (Acker, 1999; Acker & Scanes, 1998; Etling, 2001; Schuh, 1989, Thompson, 1995).

Van Dalen (1979, p. 248) stated that "before much progress can be made in any field, scholars must possess descriptions of the phenomena with which they work." "There appears to be a general consensus . . . that more research on the internationalization of higher education is needed" (de Wit, 2002, p. 211; see also Altbac, 1997, 2000; AIEA, 1995a; Dale, 1997; English, 1998; GASEPA, 1999; Teichler, 1996). As mentioned earlier, faculty are often mentioned as the main drivers and actors of the efforts to internationalize teaching. It is surprising to note, however, that, although most authors have recognized for decades the pivotal role of faculty in internationalization efforts in programs of higher education, at the beginning of the 1990's there was still not much written about the perceptions of faculty regarding the process (Carter, 1992). During the past decade, there has been a "gradual acceptance of the internationalization of higher education as an area of research" (de Wit, 2002, p. xvi), much has been written about internationalization, some research has been conducted, and a number of the issues involving internationalization are today very well documented. There is still little to be found, however, concerning the perspectives of *all* faculty (as opposed to the perspectives of faculty directly involved in internationalization). Also, there is a need to update information on "what works most effectively and what priorities to follow" (AIEA, 1995a, p. 6).

The administrations of the College of Agricultural and Environmental Sciences [CAES] of the University of Georgia [UGA], and the College of Agriculture and Life Sciences [COALS] of Texas A&M University [TAMU] are interested in further internationalizing the curriculum. If these administrations could know about and quantify the priorities, needs, and perspectives of faculty toward different academic and

institutional strategies for the internationalization of the undergraduate agricultural curriculum, they would be able to support better faculty in their internationalization efforts, and therefore have a key ingredient for a successful internationalization endeavor. This research will provide them with this very special ingredient.

2. PURPOSE AND OBJECTIVES

The purpose of this study was to analyze perspectives of faculty in selected land grant colleges of agriculture toward academic and institutional strategies for the internationalization of the undergraduate agricultural curriculum. The case of two colleges of agriculture in land grant universities, The College of Agricultural and Environmental Sciences [CAES] of the University of Georgia [UGA], and The College of Agriculture and Life Sciences [COALS] of Texas A&M University [TAMU], was presented.

To accomplish this purpose, the following specific objectives were identified:

1. Assess perspectives of faculty in selected colleges of agriculture toward the internationalization of the undergraduate agricultural curriculum;
2. Analyze perspectives of faculty in selected colleges of agriculture toward academic program strategies for the internationalization of the undergraduate agricultural curriculum;
3. Analyze perspectives of faculty toward institutional strategies to enhance participation of faculty in the internationalization of the undergraduate agricultural curriculum.

3. RESEARCH QUESTIONS

1. What demographic characteristics of the respondents affect their perspectives on, and participation in, the internationalization of the undergraduate agricultural curriculum?

2. What are the faculty members' self-perceived level of international knowledge/expertise, participation in international activities, ability to internationalize the curriculum, and participation in curriculum internationalization efforts? What are the relationships between these variables?
3. What do the faculty of selected colleges of agriculture perceive to be priorities for the undergraduate agricultural curriculum? What is the level of priority given to internationalization? What do the faculty perceive to be the present status of the internationalization of the undergraduate agricultural curriculum at the two institutions surveyed?
4. How do the faculty in selected colleges of agriculture evaluate and prioritize different academic program strategies used for the internationalization of the curriculum?
5. How do the faculty in selected colleges of agriculture evaluate and prioritize different institutional strategies to support their efforts to internationalize the curriculum?
6. Are there significant differences between the results obtained at the two institutions surveyed?
7. How do demographics, self-perceived level of international and internationalization expertise and participation, priorities given to curriculum, and perceptions toward different academic program and institutional strategies for internationalization relate to one another?

4. SIGNIFICANCE OF THE STUDY

This research will contribute to increasing the knowledge base of the process of internationalization of the curriculum in colleges of agriculture.

The National Association of State Universities and Land-Grant Colleges (NASULGC), recognizing that international education is now an imperative, prepared a working document on *Expanding the international scope of universities: A strategic vision statement for learning, scholarship, and engagement in the new century* (2000), a vision statement and planning guidelines for its member institutions, a "document [that] is not meant to be proscriptive or all-inclusive: Each institution will necessarily need to

adapt this general guide to its own needs" (NASULGC, 2000, p.1). The Association of International Education Administrators, in its *Research agenda for the internationalization of higher education in the United States* (1995a), analyzed the types of research where attention should be focused. One type of research and data collection proposed included “specific surveys which shed light systematically on trends within the fields as a whole, on specific problems or issues, or the views of those involved. . . . Surveys of knowledge, attitudes, practices and outcomes,” (p. 26). The study reported here falls into this category.

This study will provide specific insights into the perspectives of faculty of CAES-UGA and COALS-TAMU toward different academic and institutional strategies for the internationalization of the undergraduate agricultural curriculum. As a result, the two colleges studied will have available the results of a research-based study to support planning and implementation efforts for the internationalization of the agricultural curriculum.

The study is timely. For example, one outcome of a retreat for COALS-TAMU department heads conducted August 24, 2003, was a recommendation to conduct a review of the College curriculum with regard to globalization and international perspectives and to develop recommendations for improvement (J. E. Christiansen, 2003, personal communication). In Georgia, the CAES Strategic Planning Committee modeling the issue "What should the CAES do to enhance the education and recruitment of students to best meet the needs of both the students and the communities they will serve upon graduation?" was charged to embed diversity, globalization, and internationalization into the models: "The Task Force consciously chose not to model diversity and globalization as separate issues, because they should not be the responsibility of separate offices within the college, but a part of everything we do" (CAES Strategic Planning Task Force, 2003, p.2). Committees modeling other issues received similar notes.

In addition, other interested practitioners, researchers, and college administrators will have available a model instrument to use and adapt to the analysis of the internationalization process at their own institutions.

5. OPERATIONAL DEFINITIONS

For the purpose of this study, the terms listed below were defined as follows:

5.1. College of Agriculture

The term *college of agriculture* is used to name generically colleges that offer undergraduate degrees in some of the following areas: Agriculture, agricultural, applied, and life sciences, crop and animal sciences, biotechnology and related areas; international agriculture; food and fiber science and technology; agricultural economics and agribusiness; natural resources and environmental sciences; forestry, wildlife, recreation, fisheries, range, and water sciences; agricultural and biological engineering and technology; agricultural leadership, education, extension, and communication (Kunkel, Maw, & Skaggs, pp. 3-4).

5.2. Curriculum

"The process and substance of an educational program, comprising the purpose, design, conduct, and evaluation of educational experiences . . . [It is] manifested in a body of . . . [programs] that present the knowledge, principles, values, and skills intended as consequences of [the educational experience]" (Gaff & Ratcliff, 1997, p. 709). Curriculum has formal (content, program, materials, resources) and operational aspects (teaching and learning methods, grouping of students, place and time of activity, etc.) (AUCC, 2000, p. 4), and it includes in-class and out-of-class experiences.

5.3. Globalization

“Globalization . . . is the flow of people, ideas, technology and trade across borders” (AUCC, 1998, p.1) and the worldwide changes encompassed. It is a “rapidly increasing social, cultural, political, and economic process of awareness, though not necessarily acceptance, of a global consciousness and interdependence by which people make decisions about their life and their work, decisions affected or influenced by expansion and interconnectedness of linkages throughout the whole world, not just the region or

country in which they live and work, and decisions that over time collectively result in social, cultural, political, and economic consequences, both intended and unintended" (J. E. Christiansen, 2003, personal communication).

5.4. Internationalization

Internationalization is the response to the impact of globalization, the process of adaptation (effect) to the changes caused by globalization, the re-orientation needed to cope with globalization. Internationalization and the definition of internationalization are context and content-specific.

5.5. Internationalization of higher education

Internationalization of higher education is the process of integrating international and global dimensions into the educational, research, and outreach functions of the institution (AIEA, 1995a, p. 7; AUCC, 1998, p. 1; IAU, 1997, p. 1).

5.6. Internationalization of the curriculum

Internationalization of the curriculum is the process of integrating international and global dimensions and perspectives into the formal (structure, content, and materials) and operational (teaching and learning methods, grouping of students, place, and time) aspects of the curriculum (van der Wende, as cited in AUCC, 2000, p. 4).

6. DELIMITATIONS

This study was delimited to the faculty in the CAES-UGA (N = 169) and COALS-TAMU (N = 270) who appeared on faculty rosters as being undergraduate teaching faculty during the 2002-2003 academic year.

7. LIMITATIONS

The following limitations associated to the research study should be noted:

1. Respondents were restricted to CAES-UGA and COALS-TAMU;
2. Time and budgetary constraints limited the researcher in relation to the breadth and depth of inquiry possible;
3. Because the respondents did not need a password to answer the questionnaire, the researcher was not able to track nonrespondents (that is, differentiate respondents from nonrespondents), which meant that the researcher had to send follow-up letters to all individuals in the e-mail list of the target population. This detail restricted the researcher from adhering strictly to protocols and procedures proposed by Dillman (2000) to maximize response rate, limiting the number of follow-up letters that could be sent so as not to waste the time of people who had already responded;
4. The research external validity is threatened by any response rate different from 100%. Because of the response rate obtained, the findings of this study will not be a reflection of the all the undergraduate teaching faculty in the institutions surveyed, let alone of other universities or colleges, thus limiting the generalizability of the findings. Also, because this was a descriptive, multivariate correlational study, it did not have the rigor and design of an experimental study, and might therefore be limited in terms of internal validity. The results will also be limited to the degree of reliability with which faculty rated their perceptions;
5. The researcher was aware that the layout and the implementation of the qualitative part of the study (e.g., small number of interviews conducted) would not meet the accepted procedures for a study that is entirely qualitative in design. However, by using a mixed-method approach and by adding some qualitative aspects, the researcher was able to add a richness to her study that a purely quantitative approach would have lacked;
6. Confusion about the meaning and scope of some terms (i.e., internationalization) may have caused some respondents to misinterpret the questionnaire or some of its questions;

7. The newness of the questionnaire and the low number of subjects available and used for pilot testing may have resulted in an instrument less reliable than optimum.

8. BASIC ASSUMPTIONS

The following assumptions were made in regard to this study:

1. The respondents are representative of their population;
2. The respondents understand and identify the concepts presented in the instrument, and provide willing and “honest” responses of their perceptions, (i.e., they were not biased by what they assume to be the intent of the questionnaire);
3. Researcher and respondents of the study have similar understanding of the meaning of terms such as “internationalization,” “globalization,” and “infusion;”
4. The interpretations of the data accurately reflect the responses of the respondents;
5. Through this study, additional knowledge can be gained to update and widen the knowledge base on the perceptions of faculty toward different academic program and institutional strategies for the internationalization of the agricultural curriculum.

9. CONCEPTUAL BASE FOR THE STUDY

The following statements were essential to the development of a conceptual base for the study and were the basis from which the research questions were determined.

1. Faculty members have different perceptions of the meaning and implications of globalization, about the relationships between globalization and internationalization, and about the significance and relevance of internationalization of higher education;
2. Faculty members have different perceptions of the rationale for, as well as the meaning, significance, and relevance of, internationalization of the curriculum. Further, faculty have different ideas about what should be involved in the process, and the challenges associated with different models. Some characteristics of faculty (e.g., international experience) may affect these perceptions and ideas;

3. There are many factors that affect the curriculum internationalization process, including 1) individual behavior, 2) organizational and environmental factors, and 3) constituencies. There are many possible strategies available by which to enhance the internationalization process. From a conceptual perspective, these can be divided into academic program, organizational, and institutional strategies;
4. Faculty participation (and support from the administration) is essential for a successful curriculum internationalization process. Faculty participation can be enhanced with the support (in a broad sense) of the administration, and with the appropriate academic program and institutional strategies;
5. Some academic program strategies for the internationalization of the curriculum are: 1) Strong international content in the core curriculum, international credit requirements, and language programs, 2) infusion of international contents into the curriculum, 3) internationalized concentrations 4) courses with an international focus, 5) student mobility programs, 6) virtual mobility, and 7) internationalization of the campus environment and culture;
6. Some strategies to support faculty in their curriculum internationalization efforts are: 1) Faculty training, development, and international opportunities, 2) Including participation in international activities in the evaluation process and reward system (tenure, promotion, salary increases, and recognition), 3) Funds and grant programs, 4) Release time and flexible leave policies, 5) Availability of support staff, materials, and other resources, and 6) providing leadership, vision, direction, and focus.

CHAPTER II

REVIEW OF LITERATURE

This review of literature provides the theoretical base for the study, by investigating documents and research published by internationalization and curriculum development scholars, analyzing, from different perspectives, what is involved in the internationalization process and what issues and factors could affect the people and the efforts involved, and examining a variety of internationalization endeavors in higher education institutions in search of information to construct a practical picture of the different approaches, strategies, and programs adapted around the world.

The review resulted in formulation of a theoretical base of six postulates that provide the rationale for the research questions that were established. These postulates pertained to: 1) Globalization and internationalization, 2) internationalization of the curriculum, 3) faculty participation in the internationalization of the curriculum, and 4) academic program and institutional strategies for internationalization.

1. GLOBALIZATION AND INTERNATIONALIZATION

Globalization is one of the most commonly used words when describing today's and tomorrow's world. However, “much confusion exists as to the meaning of this term [globalization]” (Etling, 2001, p.1). In this section, the author discusses the meanings of globalization, contrasts globalization and internationalization, and presents different rationales for the internationalization of higher education.

1.1. Globalization

Globalization affects interconnectedness and interdependency among nations and peoples of earth: It impacts economic issues, market mechanisms, political systems, the environment, education, social systems, culture, health, food security, population

issues, technology, transportation, and communication, among others (Groennings & Wiley, 1990; McPherson, 1999). “The common thread in the definition of globalization . . . is rapid change” (Etling, 2001, p. 1). But, what is globalization?

According to Easterbrook (2000), nobody knows what it means, authors do not agree in a single definition, and sometimes even definitions are opposed in meaning. Globalization is often defined and addressed from discipline-specific perspectives: For example, environmentalists may look at globalization as a global warming synonym; military science specialists may focus in issues dealing with weapons of mass destruction; health professionals may concentrate in problems steaming from AIDS and other 21st Century plagues; communication specialists may delimit it to the Internet and other distance-learning technologies, and economists may interpret globalization as anything that relates with world trade. Some points of view accept globalization, and to some degree, see it as a positive phenomenon. Other points of view see globalization as a negative phenomenon and face it pessimistically.

Etling (2001), in a philosophical paper exploring the meaning and implications of globalization, presented six different perspectives of globalization, indicating their features, positive aspects, and negative aspects. The different perspectives are: Disneyland, development, partnership, New World Order, New Frontier, and Disaster. The author indicated that the partnership perspective, which balances efficiency and sufficiency and emphasizes community, was his preferred choice, but he also indicated that this perspective’s main problem is that it is still not well defined, and it is still untested.

One of the definitions of globalization that has been most widely used by educational institutions is that of the Association of Universities and Colleges of Canada: “Globalization . . . is the flow of people, ideas, technology and trade across borders” (AUCC, 1998, p. 1) and the worldwide changes encompassed, while one of the most widely cited in recent years is the one offered by Thomas L. Friedman in his book, *The Lexus and the olive tree:* “[Globalization] is an international system – the dominant international system that replaced the Cold War system after the fall of the Berlin Wall” (2000, p. 7).

1.2. Contrasting globalization and internationalization of higher education

The terminology used to define, contrast, and delimit globalization and internationalization is often confusing: Sometimes, the phrases global and international, and even intercultural, cross-cultural and multicultural are used indistinctively (Arum & van de Water, 1992), while at some other times authors are very eager to establish and clarify differences. The Educational Research Information Center (ERIC) Clearing House on Higher Education, explains, in a critical issue bibliography (CRIB) sheet on Internationalization of Post-secondary Education, “each phrase has a distinct meaning, but all emphasize the importance of a greater appreciation of the diverse cultures of the world” (ERIC, 2002, p. 1). Figure 1 summarizes the different approaches taken in the literature to contrast globalization and internationalization.

For some authors, these are encompassed terms (umbrella simile) and the difference lies on the breath, depth, quantity, and quality attained in the process of change, starting with efforts focused in attaining an intercultural, cross-cultural, and multicultural education (and research and outreach), reaching later an international education, and then, finally approaching a global education, meaning that the process of change is almost complete, although not final. Others, however, clarify that "globalization cannot be regarded simply as a higher form of internationalization. Instead of their relationship being seen as linear or cumulative, it may actually be dialectical. In a sense the new globalization may be the rival of the old internationalization" (Scott, 1998, p. 124).

For others, the terms do not belong to the same discourse, and each of them has its own boundaries: Multicultural education deals with cultures within a country, international education deals with a set of different separate nations and the interactions between these nations, but maintaining them apart and separate (keeping the nation as the basic unit) and global education deals with just one, interdependent world with no boundaries (Daly, 1999).

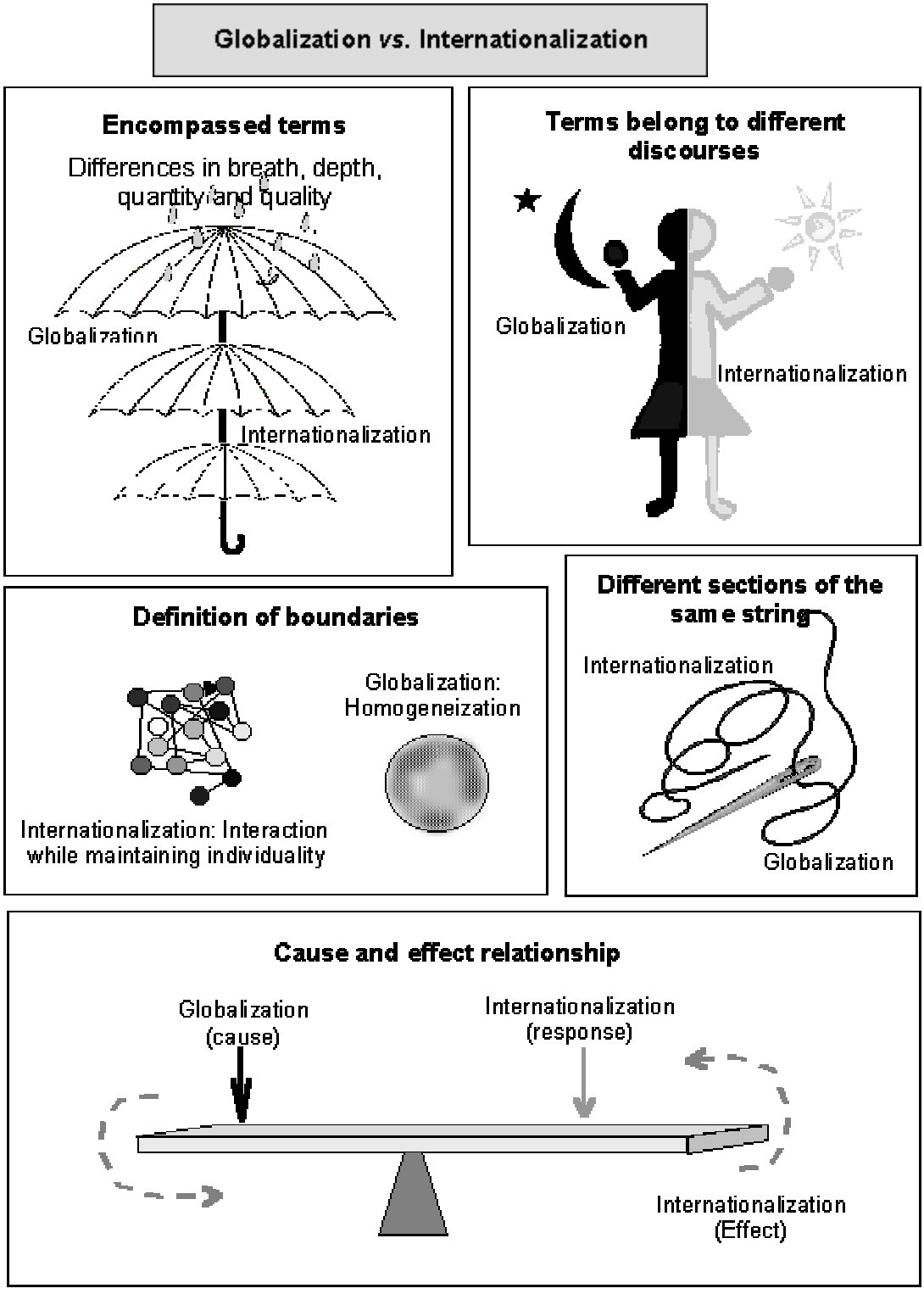


Figure 1. Summary of ways used to contrast globalization and internationalization.

For some scholars the terms are just different sections of the same string, with common pieces and separate ends. The difference is on the setting where the term is used, and one would use cross-cultural when dealing with some humanity subjects or when studying culture *per se*, international when referring to the study of languages or student study abroad experiences, and global when transforming education in professional or life science schools to adapt to the interdependent nature of the world.

For most, however, the difference is not on the degree to which they transform education, their boundaries, or their setting, but it is on the cause-effect relationship they have to each other: Globalization is what is happening in the world; it is the disappearance of boundaries between peoples, countries, and issues, the easier and faster communication between all parts of the world, the homogenization of the world, the interdependency of the world. Internationalization is what has to be done in order to adapt to this new system.

1.2.1. Globalization and internationalization of higher education: A cause-effect relationship

As indicated, many authors attribute a cause-effect relationship to globalization and internationalization. Jane Knight, in her speech of the opening plenary session of the 1998 Conference of the Association of Universities and Colleges of Canada, pointed out: “The distinction between the concepts of ‘globalization,’ which is the flow of people, ideas, technology and trade across borders, and ‘internationalization,’ which is the way a country’s higher education system responds to the impact of globalization” (Knight, as cited in AUCC, 1998, p. 1).

1.3. The internationalization of higher education

The idea of the internationalization of higher education became a common term in U.S. higher education in the late 1980’s and has been one of the most important trends of the 1990’s (Teichler, 1999, p. 6), if not of the past half century (Altbach 2000, p. 2). It is now considered by some as "one of the laws of motion propelling institutions of higher learning” (Kerr, 1990, p. 5), “although the generic use of the term causes considerable

confusion because it is employed in a variety of ways that may be conflicting or at least inconsistent" (Arum & van de Water, 1992). In fact, de Wit (2002) indicates:

> One of the fundamental problems we face when dealing with the internationalization of higher education is the diversity of related terms. Sometimes they are used to describe a concrete element within the broad field of internationalization, but terms are also used as *pars pro toto* and as a synonym for the overall term 'internationalization.' Each term as a different accent and reflects a different approach, and is used by different authors in different ways. (p. xvi)

Internationalization has been broadly defined as the process of making campuses more internationally-oriented (Pickert & Turlington, 1992; Hanson & Meyerson, 1995). In 1995, the Association of International Education Administrators (AIEA), in its publication *A research agenda for the internationalization of higher education in the United States*, defined internationalization as including "an international, comparative, and/or global dimension into the educational, research, outreach and service functions of higher educational institutions" (AIEA, 1995a, p. 7). Most associations and organizations that study and work toward the internationalization of higher education have opted for similar definitions. A couple of examples are those provided by the Association of Universities and Colleges of Canada: "Internationalization of higher education is the process of integrating an international/intercultural dimension into the teaching, research and service functions of the institution" (AUCC, 1998, p. 1), and the International Association of Universities: "Internationalization is the process which integrates an international or intercultural dimension or perspective into the major functions of the universities, namely teaching, research, and service" (IAU, 1997, p. 1).

1.4. Rationale for internationalization of U.S. higher education

During the late 1980's and early 1990's, many political and educational leaders called for further internationalization in U.S. higher education (Hamrick, 1999). For example, Dr. Ernest Boyer (1994), past President of the Carnegie Foundation for the Advancement of Teaching, said during the opening remarks for the 1994 conference *Building the Global Community: The Next Step*:

> America is now at the crossroads. We will either rediscover our relationships globally or develop the dangerous and sometimes fatal attitude of isolationism. This country is struggling in its own soul as to whether we are a part of the larger human community. We are so big that we have the illusion that we can be isolationists. We dare not try to live that delusion and fail to confront the human community and future. (p. 27)

Likewise, Dr. Josef Mestenhauser, wrote: “Failing to internationalize . . . and later finding that it was in fact necessary may waste an entire generation of students” (as cited in Ellingboe, 1997b). Today, in 2003, internationalization is still a pressing issue. Internationalization promoters have justified its need from different perspectives. However, just as it happens with its definition, there are many different speeches used to justify internationalization in higher education. The common theme is the need to change and adapt our education, research, and outreach, to globalization and the rapid changes occurring worldwide, so that our nation, economy, society, government, science, technology, businesses, community, and individuals may be able to keep up, compete, function, live, and work successfully in tomorrow’s dynamic and interdependent world community. Figure 2 shows a graphic summary of the most common rationales for the internationalization of U.S. higher education.

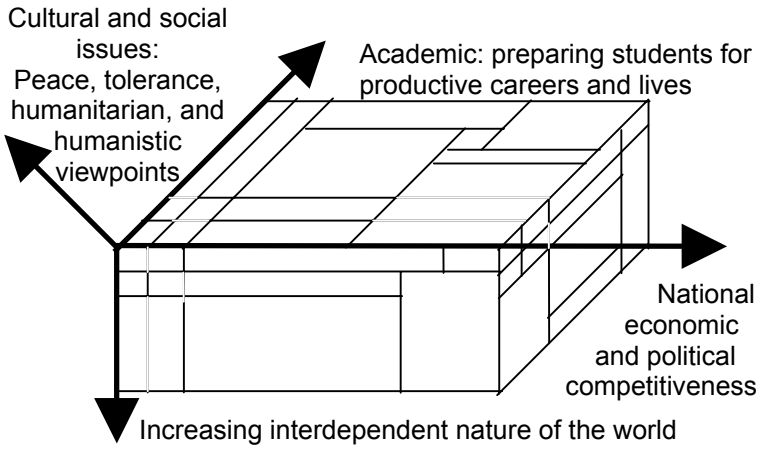


Figure 2. Summary of rationales for internationalization of U.S. higher education.

1.4.1. Academic rationale: Preparing students for productive careers and lives

According to Kunkel, Maw, and Skaggs (1996):

> The purpose of higher education . . . is to provide for the needs of society and industry in a changing world, to produce graduates with flexibility, diversity, perspective, and values. The students needed are those most likely to think globally, to act creatively, to value diversity, to behave responsibly, to respond flexibly, and to interact cooperatively in college and upon graduation. (p. 4)

In order to be prepared to live and compete in a dynamic workplace of an increasingly global and interdependent society, university students need to learn about and be exposed to the international environment. They must receive the education that will make them capable of working effectively anywhere and with anyone in the world, which means that we must accordingly adapt and change what and how we research, teach, and learn. This is especially important because it is precisely the university graduates who will be instrumental for our economic, social, and political future. Their decisions will not only need to account for what is occurring locally and nationally, but also for what is occurring globally. This is why our educational institutions must enable students to acquire global awareness, broaden their world views, be sensitive to and understand culture and diversity, effectively work and communicate in the international and global communities, acquire the adaptation skills necessary to respond to and deal with significant global dimensions and life's changes, and achieve global competence in their career fields (Bremer & van der Wende, 1995; Ellingboe, 1997b; GASEPA, 1999; Johnson, von Bargen, & Schinstock, 1995; Knight & de Wit, 1999), or as Shetty and Rudell put it (2000):

> Internationalization of . . . curriculum is not an option, but a strategic change that . . . schools must embrace to prepare students. . . . In the future, employability and the success of . . . graduates will depend on their ability to think and act in the global context and deal with the complexity of the changing environment. (p. 1)

Allan E. Goodman (1999), president of the Institute of International Education, noted: “RAND studies of corporate hiring preferences show nearly universal agreement among personnel directors that their companies need managers and employees with greater international knowledge – and experience abroad – than the ones they are hiring now”

(pp. 1-2). This argument, or a variation of it, is found in many of the university/unit strategic plans for internationalization, (ACE, 2002b; Iowa State University International Agriculture Programs [IAP], 1998; Knight, 1997a, 2000; University of Georgia Office of International Agriculture [UGA-OIA], 1997).

In addition, most internationalization scholars agree in that internationalization positively affects the quality of an institution. For example, Bremer and van der Wende (1995) in explaining what internationalization is, indicated that: "This process affects . . . the quality of education and the position of an institution, in the short and long-term respectively" (p. 17), and the Organization for Economic Co-operation and Development (OECD) considers that “an international dimension is part of the university/college mission and major functions” (Knight & de Wit, 1999, p. 4), and they included internationalization as one of the elements addressed in their quality-review processes. Also, Harari pointed out in 1992 that: “Those leaders who have succeeded in promoting a high level of institutional quality usually displayed also and implemented a strong commitment to the international dimension of their institution” (1992, p. 73), and Patrick Liverpool, vice provost for international outreach and international programs of Virginia Tech University, said, in 1995:

> We are not suggesting that the presence of strong international programs would automatically lead to an institution being a world-class university. On the other hand, it is interesting to note that every outstanding institution of higher education in this country has a global focus as an integral dimension of its mission. . . . It is paradoxical, but true, that when an institution achieves the stature of a world-class university, the distinction between international and domestic totally collapses. (p. 1)

Concomitantly, and from a perspective of agricultural programs, quality and pertinence have been also often discussed as key reasons for internationalization. For example, Etling (2001), indicates:

> Agricultural and extension educators who ignore globalization, and its current manifestations, are in peril of being left behind in current discourse. They may be criticized for a ‘development’ mentality which is no longer acceptable to many international scholars. They are in danger of proposing educational programs at home and abroad that are insensitive or out of date. (p. 6)

1.4.2. U.S. economic and political competitiveness

According to Hamrick (1999), much of the attention given to internationalization has been the result of "political and educational concerns that the United States was losing its position of world economic leadership, and that American education would have to prepare future generations to function in a more competitive and more international marketplace" (p. 2). Also, Leibold (1997) affirmed that the "lack of progress [in internationalization] will eventually put the United States at a competitive disadvantage on the world's economic 'playing' field" (p. 2). Lyman, (1995) proposed internationalizing education as a way to help *restore* U.S. economic competitiveness in the world. Likewise, ACE (1996), indicated: "Without international competence, the nation's standard of living is threatened and its competitive difficulties will increase" (p. 1). In addition, Groennings and Wiley (1990) and Knight (1997a) indicated that there were strong national security reasons to pursue further internationalization at the higher education level.

1.4.3. Increasing interdependent nature of the world

A different discourse for internationalization is the one that presents contemporary issues from a global and multidisciplinary perspective, focusing in the increasing interdependent nature of the world. Some of the most important issues we face today, such as environmental degradation, economic unbalance and debt, international trade, weapons of mass destruction, regional conflict, as well as other economic, social, and medical problems, are interrelated and are not limited by national, cultural, social, or political boundaries. What happens in one place to one person may directly affect what happens in another distant place to another individual. Therefore, the solutions demand a conscious, global cooperation, and worldwide commitment, and have to be addressed from different perspectives, fronts, and disciplines (Bremer & van der Wende, 1995; Carter, 1992; Knight, 1997a; Rahman & Kopp; 1992).

1.4.4. Cultural and social issues

Internationalization is also rationalized from humanitarian and humanistic viewpoints. It is presented as a necessary change in higher education to move towards a more socially responsive student body and society. It is a step in learning to appreciate ethnic and cultural diversity of one's nation, the search for tolerance, social change, international security and peace, and understanding and collaboration among cultures and nations (Knight, 1997b).

1.4.5. Rationale for internationalization: A summary

A good summary of the rationale for the internationalization of higher education that combines some of the discourses above is presented by the International Agriculture Section of The National Association of State Universities and Land-Grant Colleges (NASULGC), in a GASEPA (Globalizing Agricultural Science and Education Programs for America) publication (1999):

> An international dimension is incorporated into teaching, research, and extension programs so that (1) our graduates understand and appreciate the global environment in which agriculture functions, (2) our research and extension programs have access to the best ideas and technologies regardless of where they are generated and developed, and (3) the above strengthen U.S. international competitiveness within a sustainable global agricultural system. (p. 5)

2. INTERNATIONALIZATION OF THE CURRICULUM

> One critical characteristic of a distinguished university is that it is always in the process of becoming.
>
> – Princeton University, 1999

2.1. Internationalization and the transformation of the undergraduate curriculum

Throughout the years, higher education scholars have discussed what should be the purpose and ideal structure, content, and rigor of higher education in the United States

(mostly while discussing general education), resulting in numerous changes in content, process, quantity, and quality of the core curriculum, and in institutional reorganizations. Figure 3 summarizes the rationale behind some of these changes.

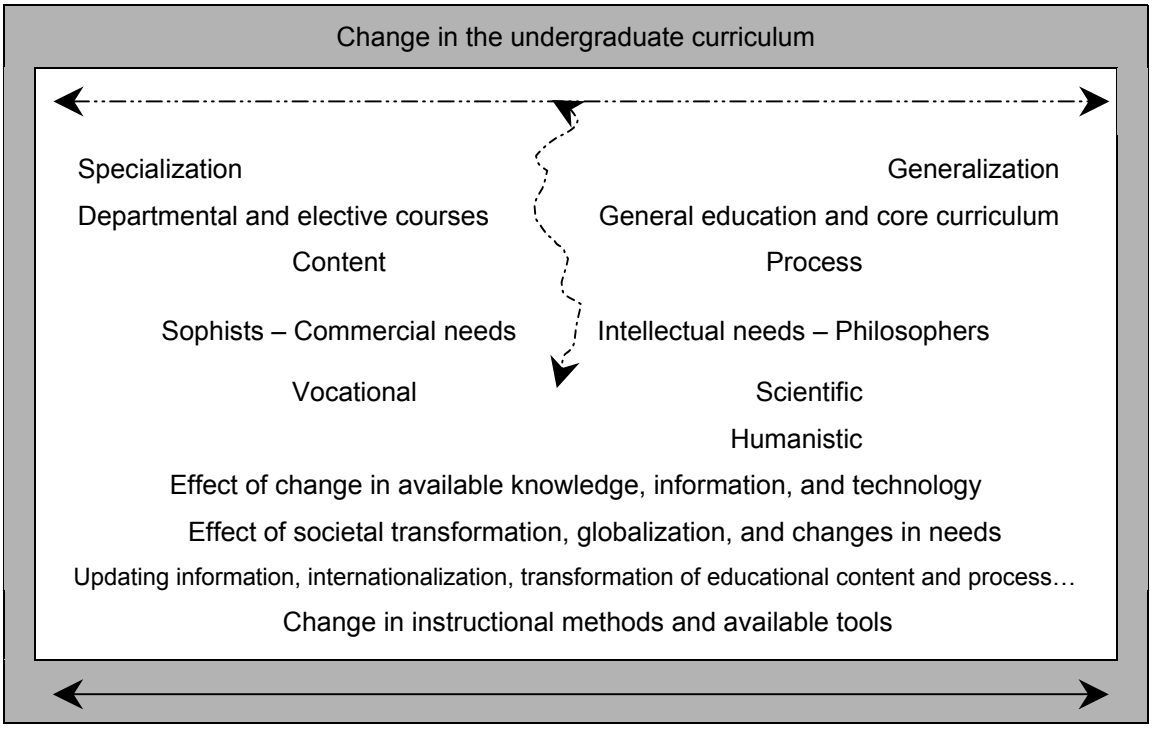


Figure 3. Rationales behind the transformation in the undergraduate curriculum.

2.1.1. The transformation of the undergraduate agricultural curriculum

Mirroring (with delay) what has been happening with general education, the nature and purpose of the undergraduate agricultural curriculum has also experienced many changes influenced by major social, cultural, technological, and globalization forces. According to Kunkel, Maw, and Skaggs (1996):

> The purpose of higher education in agriculture is to provide for the needs of society and industry in a changing world, to produce graduates with flexibility, diversity, perspectives, and values. The students needed are those most likely to think

> globally, to act creatively, to value diversity, to behave responsible, to respond flexibly, and to interact cooperatively in college and upon graduation. (p. 4)

Professional practice "increasingly demands adaptability to newer areas of technology and research, skills in communication and persuasion, ability to lead and work effectively as a member of a team and understanding of the socio-economic forces" (Vyas & Neelakantan, 2000). In other words, “instead of narrowly-trained graduates, our students must be educated to function as problem solvers not only in their professions in food, agriculture, and natural resources, but also in their roles and responsibilities as citizens” (Lunde, 1995c, p. 2; see also Faustman, Riesen, Suter, & Vietor, 1996).

Numerous surveys confirm what these authors signal and indicate that managers are more interested in their employees' personal attributes and behavioral abilities rather than cognitive skills, and value more communication, analytical, problem solving, and interpersonal skills than academic performance or technical knowledge (Boland & Akridge, 2003; Harvey, Moon, & Geall, 1997; Hayes, 1995b, Kranz, 1995; Moy, 2000; National Agribusiness Education Commission Report [NAECR], 1989, as cited by Schneider & Suter, 1989; National Association of Colleges and Employers [NACE], 2000 as cited by Ricketts & Rudd, 2002; Townsend & Kunkel, 1996). Interestingly, Johnson, von Bargen, and Schinstock (1995) reported that the results of a Delphi study to teaching faculty, students, and external partners indicated that the "respondents regarded the current undergraduate program [in agriculture] deficient in all areas [behavioral abilities] except for its ability to develop students' professional and technical competence." Other authors report similar situations: “Members of the business community criticized colleges and universities for graduating students with poor problem solving skills and deficiencies in basic subject areas” (Kranz, 1995, p. 5; see also University of Exeter, 1994). Contradictory situations and gaps between what higher education in agriculture provided to its students and what the employers wanted was not a new situation of the 1990’s, when the reports from Jonhson et al (1995) and Kranz (1995) were written. Calls for reform in agricultural colleges were also strong in the 1980’s, with, for example, two reports from the North Central Region Curricular Committee Project of the U.S. Department of Agriculture (USDA): *Curricular innovation*

for 2005: Planning for the Future of our Food and Agricultural Sciences (1987) and *Educating for a Global Perspective: International Agricultural Curricula for 2005* (1989), and the USDA-National Research Council 1992 book, *Agriculture and the Undergraduate*.

In answer to all these publications, educators in agriculture have often indicated that "Change is imperative [in colleges of agriculture]. . . . The traditional approaches can no longer suffice" (Kunkel, Maw, & Skaggs, 1996, p. 3), or, as Ratcliff, Johnson, La Nasa, and Gaff (2001, p. 17) put it, "for the curriculum to be alive and engaging, it must be dynamic and resonate to the needs and interests of current constituents, while fulfilling its perennial obligations of providing students with essential content, skills, and personal qualities."

2.1.2. Challenges to the transformation of the undergraduate agricultural curriculum

"Higher education and its faculty . . . [are] notoriously resistant to change," (Lunde, 1995c, p. 1) and, in consequence, the transformation of the curriculum has often found strong opposition, and will continue to find opposition. According to Hershley (1986, as cited in Singha, Skaggs, & Nelson, 1996), there are three categories of factors that impede curricular change, and that “should be evaluated at each institution prior to embarking on curricular change” (p. 114):

> (1) Individual personal behavior (including fear, self-centeredness, narrow vision), (2) organizational and environmental factors (organizational structure, availability of information, institutional direction), and (3) constituencies (administration, curriculum committees, faculty, students, accreditation agencies, practitioners, the media). (p. 114)

All these indicate that the “process will be fraught with [opposition,] problems, pain, contradictions, and new challenges” (Nelson, 1996, p. 112). In consequence, scholars have inquired about the best processes to follow and implement curricular revitalization, and both radical and incremental transformations have been proposed, with no general consensus. When discussing change in colleges of agriculture, Faustman, Riesen,

Suter, and Vietor proposed that "given the merits of colleges of agriculture and their limited resources, incremental changes may be thought the most prudent and feasible option" (1996, p. 82).

2.1.3. Internationalization of the curriculum as the priority of the internationalization process

As indicated in previous sections, the internationalization of higher education is a process that involves the research, service, and education components of the institutions. However, many authors contend that the curriculum is the most important component in an internationalization program (ACE, 2002b; Ellingboe, 1997a, 1997b; Fortin, 2001; Groennings & Wiley, 1990; Klasek, 1992a; Knight, 1997a; Lambert, 1989; Liverpool, 1995; Mestenhauser, 1998; Tonkin & Edwards, 1981).

As Harari (1989) put it in his report on the *Internationalization of higher education*: "The heart of the internationalization of an institution is, and will always remain, its curriculum precisely because the acquisition of knowledge . . . is what a university is all about" (p. 3).

In a report analyzing internationalization strategies in Canadian universities, Fortin (2001) found that "teaching was the priority of internationalization" (Fortin, 2001, p. 4). Likewise, in a study conducted among the private, government and education sectors Jane Knight (1997a) found that the three sectors ranked the curriculum as the most important element of internationalization. Similar conclusions can be drawn when reviewing efforts in universities and colleges in the U.S. For example, P. R. Liverpool, vice-president for international outreach and international programs at Virginia Tech University, indicated (1995):

> As we discuss the process of internationalization, it is imperative that we maintain our focus on one of the fundamental rationales for international activities. And that is the *total* education of our students. And at the core of the educational process is the strength of our curricula. (p. 2)

In summary, there is a generalized trend to identify internationalization of higher education institutions with the internationalization of the curriculum, and it has become

very common for some administrators, practitioners, and researchers to concentrate only on the internationalization of the undergraduate curriculum when discussing, planning, funding, evaluating, justifying, and quantifying the internationalization of their institutions.

2.1.4. A country's concern: A national call for internationalization

The concept of the internationalization of the curriculum is not new, "but neither has it been sufficiently addressed at most universities" (Etling, 2001, p. 4; see also Ellingboe, 1997a; Heijmans, 1996). In the U.S., several widely circulated national reports have advised of the importance of the internationalization of the curriculum and have alerted about the potential danger we face if the current situation continues unchanged. Some of these reports "resemble wake-up calls urging immediate action for improving the international knowledge base of our nation's students" (Ellingboe, 1997a, p. 4), and they are addressed to the nation's leaders, higher education administrators and educators, employers, and even individuals.

Some of these reports include:

- *Strength through wisdom – A critique of U.S. capability* by the President's Commission on Foreign Languages and International Studies (1979);
- *Integrity in the curriculum* by the Association of American Colleges (AAC) (1985);
- *Educating for global competence,* by the Council on International Educational Exchange (CIEE) (1988);
- *National task force report*, by CIEE, the Association of International Educators (NAFSA), and the Institute of International Education (IEE) (1990);
- *Guidelines for international education at U.S. colleges and universities*, by the Association of International Education Administrators (AIEA) (1995b);
- *Educating Americans for a world in flux: Ten ground rules for internationalizing higher education,* by ACE (1996).

After these reports indicated that it was the duty of higher education to address better internationalization needs, there has been an important and strong

internationalization movement to close the “gap between where we are and where we’d like to be” (Goolrick, 1995): Politicians got involved, university leadership addressed international issues in their institution’s mission statements, departments and colleges created new courses and changed existing programs, student mobility numbers doubled, if not tripled. . . . However, if one looks at what has been done, it seems that there is not much consensus exactly on why to do it, when to do it, where to do it, how to do it, and who should do it, as well as to whom efforts should be addressed. It is argued that we still have a long distance to cover, that efforts are not balanced, not concentrated in the areas of interest, unrelated to each other, and in some cases, that we are losing the point of what internationalization is all about. In consequence, new conferences, books, and reports, and monographs continue to voice that it is *still* the duty of the higher education community to address better internationalization needs (Hawkins, Haro, Kazanjian, Merkx, & Wiley, 1998; Mestenhauser & Ellingboe, 1998). As Emory University President William M. Chase put it: “We have come a long way very quickly. But Emory, I believe, still has a very long way to go before it feels fully connected to the parts of the world that are going to make the most difference to its graduates” (Goolrick, 1995, p. 1).

The calls for reform and internationalization in agricultural colleges also abound. Many indicate that companies employing agriculture graduates "are increasingly looking for employees with a global outlook" (UGA-OIA, 1997), and that “to prepare the next generation of food, agricultural and natural resource professionals . . . their educational experience must embrace more international content than heretofore,” (Thompson, 1995) which makes necessary “a radical rethinking of the mission, need, and approach to the undergraduate curriculum in agriculture” (Kunkel, 1992, p. 4; see also Acker, 1999; Acker & Scanes, 1998; Etling, 2001; Kunkel, Maw & Skaggs, 1996; Jischke, Topel & Acker, 1999; Schuh, 1989).

2.2. Defining internationalization of the curriculum

An important question faced by internationalization scholars is the definition of internationalization of the curriculum. As it was the case with internationalization of higher education, "to those involved in the field, 'internationalization' takes on many

forms and meanings" (AIEA, 1995a, p. 6), and the difficulty to define the term increases as more people and disciplines participate in the debate (Arum & van de Water, 1992).

It could be argued that this lack of definition may have served its purpose, by extending to everyone the possibility of participating in the internationalization endeavor. However, for others, the lack of an agreed-upon definition may have been disastrous for the internationalization proponents. For example, Herman B. Wells, at the time president of Indiana University, concluded that one of the reasons why the International Education Act of 1966 had not been funded was because some members of Congress thought that international education was just one more form to categorize international development aid (Wells, 1970, as cited in Arum & van de Water, 1992).

Concomitantly, as we look ahead and as more people are involved, and as more reports, articles, reports, conferences, and courses appear, it becomes increasingly important to understand the meaning of internationalization to the different people participating in the debate, so that communication among practitioners is easier, funding sources know what its proponents are advocating, and a clear dialog can be established with broader audiences. As Arum and van de Water (1992) suggested: “With the maturing of international education . . . it is time to initiate discussion of a set of definitions for international education and its constituent parts” (p. 194), and "even if there is no agreement on a precise definition, internationalization needs to have parameters if it is to be assessed and to advance higher education” (de Wit, 2002, p. 114).

When one looks at the many definitions available, it is possible to group them depending on the approach to internationalization that the author takes. As shown in Figure 4, the most common approaches are: Activity, competency, rationale, and process. The bridges and arrows drawn among the different groups represent the interaction and overlapping among the approaches, and are meant to remind the reader that all perspectives are complementary and not at all mutually exclusive. Figure 4 also provides one of the most commonly used definition for each of the approaches.

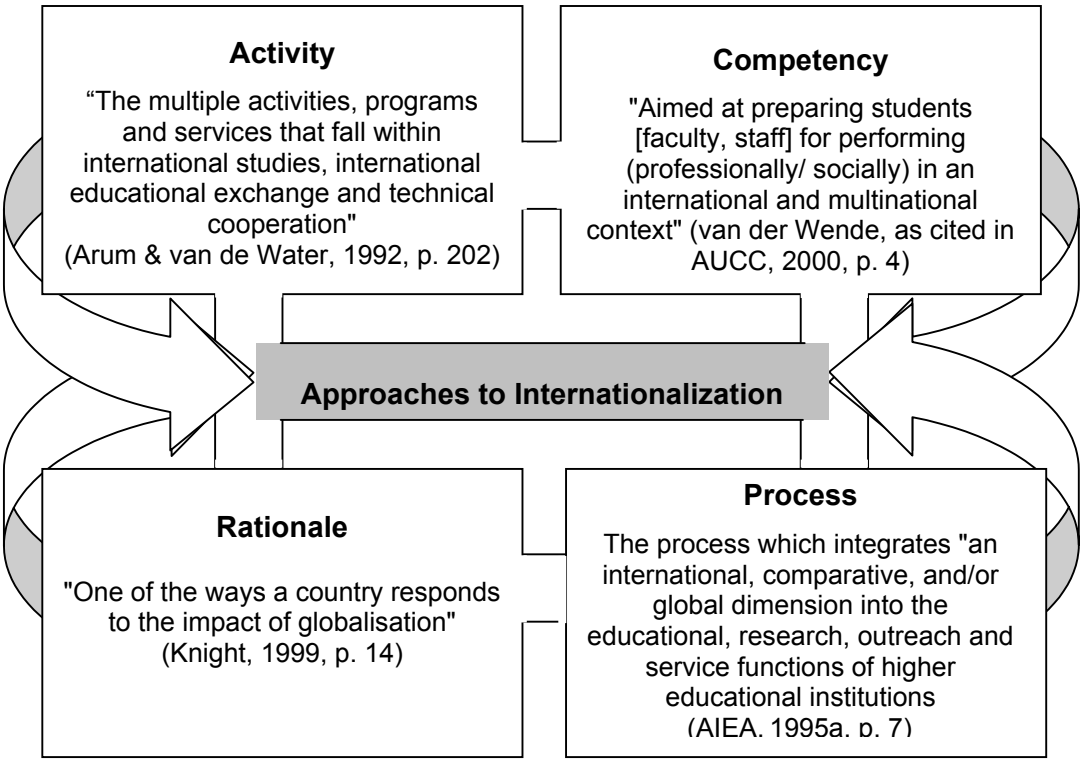


Figure 4. Examples of definitions for internationalization of higher education depending on the approach to internationalization.

2.2.1. Activity definitions

The definitions that develop after the activity approach describe internationalization “in terms of categories or types of activities . . . [and focus] exclusively on the content of the activities and does not [*sic*] necessarily include any of the organizational issues needed to initiate, develop, and sustain the activities” (de Wit, 2002, p. 116).

Examples of the types of activities most frequently listed in activity definitions are: Mobility programs (to and from the institution) for students, staff, and faculty, curricular innovation, infusion, new courses, foreign languages, area studies and international concentrations, comparative education, technical assistance, international agreements and research collaborations, faculty development, and internationalizing the campus environment with various extracurricular activities.

2.2.1.1. Student mobility

The definition of internationalization has changed with times and historical context. It "originally meant simply an increase in student mobility" (Heijmans, 1996, p. 1). Many people and organizations continue to use internationalization and student mobility as synonymous terms, not including other additional and complementary strategies, limiting, therefore, the benefit of internationalization to a small percentage of students lucky enough to be able to take part in the mobility programs (Bremer & van der Wende, 1995; Ellingboe, 1997a). Exposing the restrictive nature of defining internationalization as just a number of mobility programs, Bremer and van der Wende (1995) called for the need to include in the definition other strategies so "non-mobile students are . . . [also] exposed to an international experience" (p. 35). Other detractors of this view indicate: "[Curriculum internationalization] is not a strand which should be separated from the overall [curricular] reform. . . . Nor is it scholarly mobility or a program additive . . . or the supervision of exchange and study abroad programs" (Ellingboe, 1997b). However, it is still not rare, for example, when surfing the World Wide Web to review the Programs of "International Education Offices" of universities around the U.S., to find that study abroad and student exchange is all what the International Education Offices do, or to find internationalization programs being evaluated solely by the number and percentage of students that traveled abroad in a given academic year.

2.2.1.2. From addition to infusion

Another definition for curriculum internationalization is "to *add* [italics added] international elements to a large number of classes" (Lundy Dobbert, 1998, p. 53). The supporters of this approach argue that with this system one can reach all students. The detractors indicate that 'adding' is simply not enough, might overload curriculum, does not give any international experience or immersion to students, and "educational systems-based factors make course-by-course change for maximal internationalization difficult and probably impossible" (Lundy Dobbert, 1998, p. 53).

Other scholars also argue that addition is not the solution, but take a different road than the one taken by Lundy Dobbert (1998). This is the case of the proponents of *integration* or *infusion* solutions, who define internationalization of the curriculum as the

process of integrating and infusing all the curriculum with international context and contents. One example is the one offered by the Association of Universities and Colleges of Canada (AUCC) (2000):

> Internationalization is a priority at the university, in part, because we believe that the 'new' graduate must be internationally informed and competent, regardless of discipline or program of study. This cannot be accomplished without major changes to the undergraduate curriculum. While study abroad opportunities and focused programs such as majors, minors or area studies continue to be important, only the integration of an international component into all curricula will ensure that all faculty and students think, teach, learn and work globally. (p. 3)

2.2.2. 'Competency' definitions

The central point of competency definitions is “on the human dimension, not on academic activities or organizational issues" (de Wit, 2002, p. 117). They focus on student (as well as faculty and staff) learning outcomes (development of skills, attitudes, values, and knowledge), and are frequently used by educational organizations (ACE, 2000; AIEA, 1995a). A widely accepted 'competency' definition is the one provided by van der Wende as shown in Figure 4: Internationalization is "aimed at preparing students [faculty, staff] for performing (professionally/ socially) in an international and multinational context" (van der Wende, as cited in AUCC, 2000, p. 4).

Lundy Dobbert (1998) argued that the typical curricular approach falls short for internationalization, and provided a much more specific and restrictive competency definition:

> Globalization means the ability to operate without undue stress in some other culture. . . . A globalized [internationalized] person must (1) speak two to three languages in addition to English at the level of 7 or above on a 10-point scale . . . , and (2) must have resided in at least two non-English speaking countries, in non-Americanized environments, for at least one year each. (p.65)

2.2.3. Rationale definitions

The definitions that take the rationale approach describe internationalization from the perspective of its purposes, goals, or rationale, which are similar to the ones described when discussing the rationale for the internationalization of higher education (academic and quality perspectives, economic and political competitiveness, increasing interdependent nature of the world, and cultural and social issues).

2.2.4. Internationalization of the curriculum defined as a process

In order to counteract the tendency of using interchangeably the terms internationalization of the curriculum and student mobility (or any other activity by itself), many authors clarify that internationalization is much more than that, that internationalization is not an isolated effort, program, event, or product: Internationalization is *a process*, a process of integration, a multifaceted package of educational reform (Ellingboe, 1997a, 1997b; Groennings & Wiley, 1990; Harari, 1989, 1992; Klasek, 1992a; Knight, 1997a; Lambert, 1989; Mestenhauser, 1998; Tonkin & Edwards, 1981).

In addition to the U.S. scholars cited, other authors around the world also define internationalization as a process. In Europe, for example, de Wit has defined internationalization as “the complex of processes whose combined effect, whether planned or not, enhances the international dimension of the experience on higher education in universities” (1995, p. 28). In Canada, Fortin (2001), after a detailed analysis of Canadian university internationalization strategies, noted that “most universities perceived internationalization as a process. . . . As seen from this perspective, internationalization incorporates the elements of culture and context, the players and organizational structures” (p. 3).

According to de Wit (2002), the process approach is the most comprehensive of all. Also, if one views internationalization as part of an on-going, encompassing transformation of education, the process definition is best supported by change and educational theory and practice. For example, the Concerns-Based Adoption Model (CBAM) (Hall & Hord, 2001), which indicates that change is a process, not a product or

event, could work very well as a theoretical framework to help manage the internationalization process, as it provides helpful ways and tools to plan, implement, and evaluate change in an educational context. Some of the ideas discussed in the CBAM model are to some extent also covered later in this literature review: The change process (internationalization) is affected by the context of the institution, it will depend on human capacity and their participation in change (including their own), and key to effective change is the planning and implementation of appropriate strategies (or interventions), which will also help reduce the challenges of change.

2.2.5. Definitions that incorporate various approaches

It is common for authors to integrate various approaches in their definitions. A rich example is one offered by Ellingboe (1997b):

> Internationalization is the process of integrating an international perspective into a college or university system. It is an on-going, future-oriented, interdisciplinary, leadership-driven vision that involves top administrators creating an institutional vision and motivating people in both academic affairs and student affairs units to change an entire system to think globally, comparatively, and collaboratively while reacting to multi-dimensional environmental changes in global political, economic, social, and cultural arenas. It is the way an institution adapts to an ever-changing, diverse external environment that is becoming more globally focused. (p. 2)

2.2.6. Integrating definitions and philosophies: A summary of internationalization definitions

Van der Wende (as cited in AUCC, 2000) integrates many of the former definitions and philosophies with the following definitions:

International curriculum is: “Curriculum with an international orientation in content, aimed at preparing students for performing (professionally/socially) in an international and multinational context, and designed for domestic and/or foreign students” (p. 4), and curriculum internationalization is:

> The process of curriculum development or change that is aimed at integrating an international dimension into the formal and operational aspects of the curriculum where formal refers to course content and materials and operational to teaching and learning methods, grouping of students, the place and time of courses, etc. (p. 4)

2.3. Who will get it done? The drivers of the process of internationalization of the curriculum

"In the university community, those who attempt to set a new direction for undergraduate education can encounter considerable institutional inertia" (Johnson, von Bargen, & Schinstock, 1995, p. 54). Who will, then, be responsible for taking the leadership of the curriculum internationalization process and who will ultimately get the job done? Some authors argue that anyone could start the process. This is the case, for example, of Charles Klasek (1992b), who wrote:

> Attitude, character, spirit, and passion an international university can make. The spark can begin anywhere – in the individual on campus charged with the international programs, in a faculty member, in the President, or in the students. The flames occur when individual programs begin to evolve and mature, and the fire consumes the institution when programs come together and sweep the university. (p. 206)

Other authors seem to support better the top-down philosophy. For instance, Ellingboe (1997a) concentrated on top-down strategies when focusing her research. Other authors advocate for a participative, flexible, predominantly bottom-up approach, based on the fact that faculty are the main agents of change, they need to feel ownership of the project for they will be the ones implementing it, and they are the ultimate source of creativity (Singha, Skaggs, & Nelson, 1996).

There seems to be most agreement, however, in that the different participants should share responsibilities (Acker, 1989) and that change should develop top-down and bottom-up simultaneously, with one or the other being dominant depending on the specific environment of each institution (Leibowitz, Farren, & Kaye, 1986). In real situations, for example, in an analysis of five colleges of the University of Minnesota,

Ellingboe (1997a) found that in two of the colleges, it was the deans and a few committed faculty who led the efforts, while in the other three colleges, it was just the faculty members who led the efforts.

This section reviews how different groups and individuals may participate in getting the internationalization process going. Figure 5 summarizes who they are, and indicates what is generally the major contribution to the process of each one of the groups.

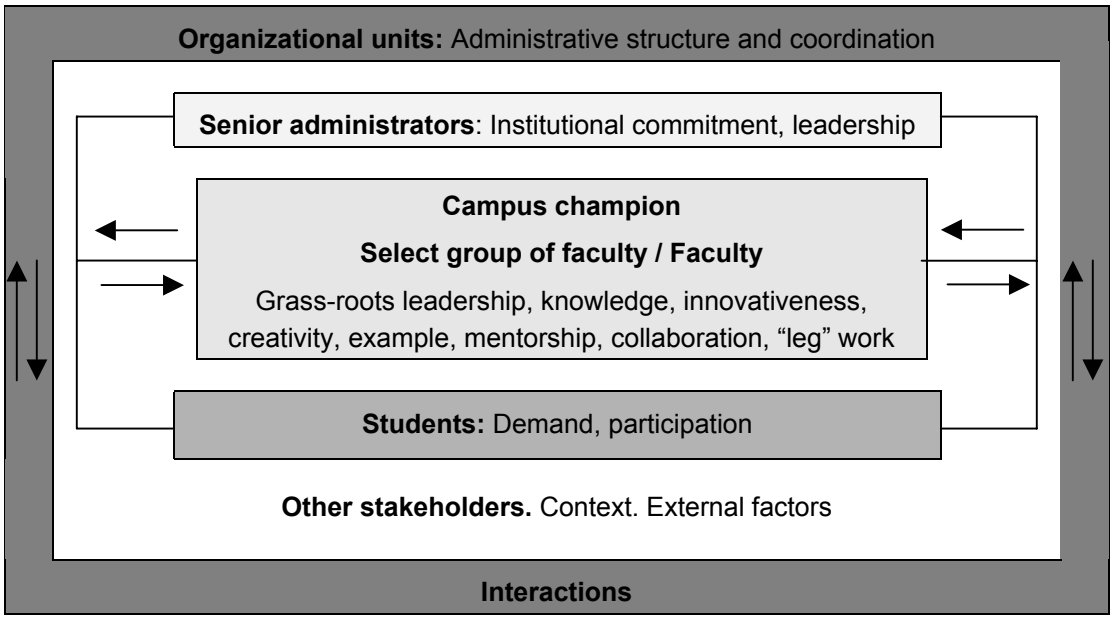


Figure 5. Drivers and actors in the internationalization process, and their major contributions.

2.3.1. Senior administrators

Many authors see internationalization as one form of deliberate organizational change led by managers that needs a strong institutional commitment. For example, Hamrick argued that "institutional leaders should pre-determine desired outcomes which would be appropriate for their institutions . . . should envision change on their

campuses, and then set out to bring about those changes" (1999, p. 3). Harari (1992) indicated:

> The leadership role of the senior administrators, especially the President and the Provost/Vice President for Academic Affairs, is critical. This role can be partly exercised through the various signals which these individuals are in a position to send regarding priorities. . . . It is obvious that leadership is essential to effect institutional change. The process calls for vision and inspiration. (p. 72)

John, Townsend, and Nelson (1996) concurred with Harari: "Creating a vision of the desired state is the first and, most would agree, fundamental step in initiating change" (p. 42). When internationalization is part of a vision and a deliberate organizational change, it should be included in the strategic plan or mission statement because it implies an institutional *commitment* (AIEA, 1995b; Backman, 1993; Ellingboe, 1997a; Groennings & Wiley, 1990; Klasek, 1992; Pickert, 1992; Shetty & Rudell, 2000, Whalley, 1997). Internationalization "starts with the university . . . making internationalization a priority and then follows with faculty members making changes within their own courses" (Ellingboe, 1997b, p. 4). Along these lines, Harari (1992) stated that:

> It is highly recommended that a higher education institution plan the development and implementation of its international mission in an integrated fashion. In the first instance, it is critical that whatever is possible be done to ensure that the international dimension be identified as an integral part of the mission of the institution and endorsed as one of its five or six priorities . . . integrated programming and strategic planning are essential. (p.76)

Unfortunately, however, most institutions of higher education in the United States do not have an internationalization strategy for the whole institution, and efforts are fragmented and unintegrated (Mestenhauser, 1998, p. 10), often the result of unrelated initiatives based on individual interests and capabilities (Aitches & Hoemeke, 1992, p. 80).

To manage curriculum change, or internationalization, senior administrators have two challenges, first, to decide what to do and what to change, and second, how to get maximum acceptance of those involved: Administrators need to act as catalysts and

synergists, they must provide professional leadership and stimulate intellectual excitement, search for and identify opportunities, develop funding sources, communicate the need for change, and work with stakeholders to provide a vision and a plan, for "planning creates the environment for inducing change" (Nelson, 1996, p. 107).

In addition, many scholars indicate that regardless of where leadership is, senior administrators' support or resistance toward internationalization can strongly determine the direction that internationalization is going to take in a specific institution (ACE, 1996; El-Khawas, 1994).

2.3.2. Organizational "units"

According to some authors, internationalization needs an administrative and organizational structure in charge of planning, leading, developing, implementing, monitoring, and evaluating programs. This structure can take many different forms, depending on mission, issues dealt with, level of work, administrative duties, academic involvement, size, personnel, funding, resources, and power, as can be seen in the large variability of solutions that are being used by higher education institutions. Many universities opt to have a centralized international development office for faculty development activities, grants, institutional linkages, and outreach programs; a separate international education office that generally is responsible for overseeing the university's student mobility programs; and an office for international students. In some cases these three units report to the same vice-president, and in other cases, they report to different vice-presidents, which makes unit coordination more difficult. Other universities have all these three offices merged in one.

Other internationalization efforts, especially these dealing with academic activities, such as internationalized courses, infusion of international content, international certificates, etc., are often coordinated by other smaller units, generally located in individual colleges or departments. At the college level, internationalization is, more often than not, just in the hands and at the backs of a few committed faculty, with more or less departmental, college, and administrative support, and it can also "take the form of a director of international program, an international program committee, an

international institute/center, or a full-fledged international department" (Shetty & Rudell, 2000, p. 2).

Rahman and Kopp (1992) recommended the creation of one unique, central, and visible unit to coordinate all the internationalization efforts in a university in order to avoid the “weakening of initiatives through splintering” (p. 2). Harari (1992), agreed with this perspective: “The case for a responsible and vigorous center for international education administration and leadership on campus has been amply tested through experience” (p. 72), and NAFSA (1993, as cited in Ellingboe, 1997a) stressed that the director of the central office of international programming should report directly to the president.

Contrarily, Foster sided with “more flexible structures to allow faster response to the public agenda” (1999, p. 74), and Hamrick (1999), proposed to emphasize organizational functions rather than structures, indicating that:

> The multiplicity of international concerns makes it increasingly unlikely that an ‘international office’ can grasp all of an institution’s international activity? [*sic*] much less plan and organize new international initiatives. Thus, institutional leaders should promote and support all types of internationalization efforts, encouraging the development of a patchwork of centers of international expertise throughout campus. (p. 7)

According to Nelson, a useful strategy to effecting curricular change is to "enhance organizational flexibility by breaking down the barriers" (1996, p. 111) between and within units and colleges to encourage cooperation and integration.

In summary, it appears that not only organizational and structural options are countless, but also, according to Knight (1997a), they are one of the most controversial issues in internationalization efforts.

2.3.3. A “campus champion”

Johnson and Eldestein (1993) (see also Bremer & van der Wende, 1995) indicated that successful internationalization depends on a “campus champion,” and Nelson indicated that "when we examine the reasons why successful teaching programs

endure and new innovative approaches are developed, we often find a champion who was personally committed to making it happen" (1996, p. 111). A campus champion is respected both by faculty and administrators, has power, and is a good educator, knowledgeable, change oriented, risk taker, a collaborator, and a “doer.”

2.3.4. A select group of faculty

According to Singha, Skaggs, and Nelson (1996), curricular change is a bottom-up process that is best accomplished when started and built from the work of a select group of faculty members who can lead with example:

> A few key instructors (not courses), those committed to quality teaching, should be identified for the development and implementation of new forms of higher education and compensated for their effort and willingness to develop such courses. Once the instructors have made changes appropriate to concerns within their college’s curricular strategy and taught their respective courses, case studies of the successes and failures can be presented to the faculty as a whole. This will take time, but is more likely to be successful than a strategy which favors rapid changes without careful forethought. (p. 124)

2.3.5. Faculty

Throughout the years, curriculum in higher education has been changed, redirected, and revitalized. The changes that have taken place were either ‘directed’ nation-wide, regionally, institutionally, or as grass-roots initiatives. In most cases, however, faculty have been regarded as “the majors agents of change in reforming curricula, renewing themselves, and improving instruction” (Lunde, 1995c, p. 2; see also Vietor, John, Thompson & Kunkel, 1996). According to Nelson (1996), for curricular change to succeed, it needs "to be the product of individual and collective faculty thought and debate" (p. 108).

When dealing specifically with internationalization efforts, many authors indicate that faculty are at the core of any successful endeavor (AIEA, 1995b; Carter, 1992; Emory University Office of International Affairs [EUOIA], 1995; Leibold, 1997; Liverpool, 1995;

NASULGC, 1993). In a 1990 study by Washington State University, 90% of universities surveyed (n = 183) indicated that faculty were very important factors for internationalizing a campus. This has also been shown in observations based on facts: Institutions with wide faculty support to internationalization are more successful in internationalization endeavors that those with low degree of support by their faculty (Carter, 1992). In these lines, Leibold (1997) argued that America's programs were considerably behind Western European and Japanese programs in terms of curriculum internationalization because of lack of faculty "interest, training and incentives" (p. 1).

In consequence, faculty should be included in any present or future effort to internationalize or change the curriculum, from the planning to the implementation stages (Baker & Thomas, 1995; Hayes, 1995a; Kunkel, Maw, & Skaggs, 1996; Lunde, 1995b).

2.3.6. Students

Students have a very important role in the internationalization process. If students are not interested in internationalizing their education, most surely they will be able to find institutions or options within any institution where they do not have to. If there is not demand, then it is difficult for the offer to continue to flourish. In fact, according to Ellingboe, an effective way to overcome resistance to internationalization is to involve the students in the process, for "student interest in and demand for certain courses, majors, languages, and study abroad programs may direct a college or unit to provide more of these" (1997a, p. 21).

Student demand and participation will depend heavily on the student advisement process: Many students rely in their faculty advisor for course selection and for decisions about participation in optional academic programs. The level of support to internationalization of faculty advisors can be decisive in enrollment numbers, in students' involvement in internationalized programs (for credit or not for credit), and in the depth and scope of this involvement (Carter, 1992).

It is important to note that students who have participated in internationalization opportunities are probably the best ambassadors for internationalization programs:

“Students who have met and listened to U.S. students who have studied or worked overseas are more likely to think of an international experience as something they might realistically plan to do” (Aitches & Hoemeke, 1992, p. 88).

2.3.7. Other stakeholders

According to Rahman and Kopp (1992), higher education is not solely responsible for its internationalization: Government, professional associations, individuals, and the public community as a whole, are all actors in the internationalization process and should cooperate with higher education toward the common objective of internationalization. Foster (1999) indicated that “knowledge exists in every community. . . . We must utilize knowledge from all sources to address complex issues” (p. 73), and Vietor, John, Thompson, and Kunkel indicated that the clientele and employers of graduates of colleges of agriculture “can be of great assistance in defining and achieving our desired educational outcomes . . . [and] not to capitalize upon this knowledge . . . is a disservice to the students and to the society that these students will serve” (1996, p. 15). Finally, Whalley (1997) and Aitches and Hoemeke (1992) made a call for higher education to reach out and forge community relationships, while Kameoka indicated that stimulation of internationalization should have regional, national, and supranational support, and that it should "involve active participation by stakeholders from government, the private sector, the community, and voluntary organisations [*sic*] in its development" (1996, p. 36).

The difficulty, however, “will not be in obtaining assistance from these groups. Rather, it will be in developing a process by which such knowledge as is needed can be incorporated into the program in an efficient manner” (Vietor, John, Thompson, & Kunkel, 1996, p. 16).

2.3.8. Consensus-building and communication

A collaborative effort and good communication among all stakeholders in the internationalization-planning process is very important (AIEA, 1995b). It facilitates a multiple perspective analysis of the trends and future needs for internationalization,

impact, and costs. Most importantly, it assures greater buy-in from the faculty and staff, for it implies that the plan has not been a top-down imperative, but a grass-roots initiative, and, as Nelson says, “the greatest benefit often comes through participation in the planning process itself rather than from the product (1996, p. 107). Consensus-building also puts together the different units of a university, which means that the plan that is being prepared is for the institution as a whole, as opposed to a series of unrelated, uncoordinated, and often competing temporary initiatives. Along these lines, Harari (1992) suggested:

> There is no substitute to a consensus-building process which must be initiated and nurtured on campus. It is this process which ideally will yield the true commitment of the faculty and the administration. A mission statement which is not the result of a careful institutional process involving the faculty and the administration is easily perceived by any qualified visiting consultant as no more than public relations verbiage. (p. 69)

2.3.9. Joining all the players in a common organizational model

Internationalization scholars describe in the literature many different organizational models for the internationalization of higher education (Davies, 1995; de Wit, 2002; Rudzki, 2000; van der Wende, 1994). De Wit (2002) analyzed six of these models and proposes “the internationalization circle” (p. 136), a circle that includes most of the players in the internationalization process. A modification of this model is presented in Figure 6.

2.4. Internationalization of teaching and quality of teaching

Parallel to what has been discussed previously referring to internationalization and quality of an institution, we find in the literature many discussions dealing with the relationship between internationalization and quality of education. According to Bremer and van der Wende (1995), internationalization is part of the continuously on-going educational change process experienced by higher education, “aimed at improving the quality of education” (p.11). Harari (1992) summarized the issue very eloquently:

The internationalization of undergraduate education is not a strand which should be separated from the overall reform in higher education. In fact, as we look at the major criticisms of our undergraduate curricula . . . in many cases . . . the criticism deplores amongst others the relative lack of global emphasis. . . . We do maintain that without the serious commitment and implementation of an international content and ethos in undergraduate life there is no possibility of achieving a quality curriculum which can prepare students adequately for the highly interdependent and multicultural world in which they live and have to function in the future. (pp. 52-53)

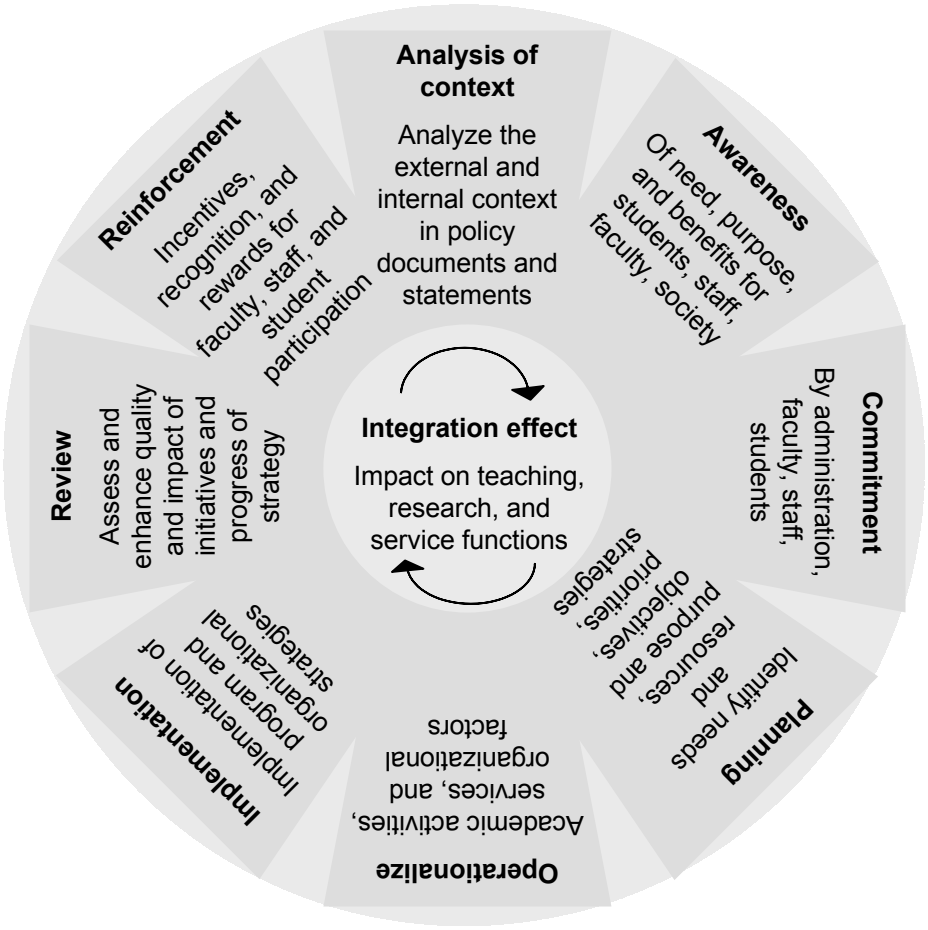


Figure 6. The internationalization wheel (modified from de Wit, 2002, p. 136).

2.5. About the percentage of students benefiting from specific internationalization efforts

The impact of mobility programs, international, or area studies, is often limited to a small elite group of students, intellectually self-selected, or selected for economic reasons. The repercussion to the university student body as a whole is rather limited. For example, at the end of the decade of the 1980's, Boyer (1987) wrote:

> After visiting dozens of colleges and speaking with hundreds of faculty members and students, we are forced to conclude that a dangerous parochialism pervades many higher learning institutions. While some students have a global perspective, the vast majority, although vaguely concerned, are inadequately informed about the interdependent world in which they live. (p. 281)

According to the American Council on Education (ACE, 2002b), only three percent of students had the opportunity to study or work abroad at the beginning of the new millennium. Many internationalization scholars (ACE, 2002a; Texas Special Committee on Globalization and Higher Education, 2001) argue that internationalization should ensure that *every* student is exposed meaningfully to the international dimension.

2.6. Factors affecting the internationalization of the curriculum

Many factors, external and internal, affect the implementation of the curriculum internationalization process in institutions of higher education. The dominant external factors are "forces over which we have little if any control or influence, and, while some will be at least partially foreseeable or predictable, others will not" (Princeton University, 1999) , and include societal changes (globalization, labor market, technology, and national economy, political situation, and international relations), and changes in higher education patrons (state legislatures and governing boards, external funding and support). The internal factors that seem to have most weight are the strategies (level, quality, quantity) in place for internationalization, including program and organizational / institutional strategies, the drivers and actors in the internationalization process, and the factors affecting them, and the situation and circumstances of the institution, which

include the human, institutional / organizational, and ideological dimensions. A more detailed compilation of the internal factors is diagramed in Figure 7.

2.7. Strategies for the internationalization of the curriculum

Institutions of higher education have available a score of strategies for the internationalization of their curriculum. These strategies should not be tackled separately, but interwined with each other, addressing internationalization from a holistic perspective, or, as Foster (1999) indicated: “In order to change a system, you must start everywhere at once. . . . You must address structural issues, curricula, resource allocation, access, collaboration, technology, and other variables that will influence the change you desire” (p. 72).

Although it is seems clear to most that an internationalization plan should not look at strategies separately, but in combination with each other, it is also conceptually easier to most to analyze and assess the strategies separately before making the decision of which ones to choose, when and how to use them, and how to make them all fit together. To this end, strategies are often grouped either as “program strategies” or as “organizational / institutional” strategies. Program strategies are often *direct actions* while organizational and institutional strategies are more philosophical and structural in nature. Figure 8 shows a diagram of some of the most relevant and frequently used strategies for internationalization of the curriculum. Many of these strategies will be dealt with in more detail later when discussing strategies that may be useful to support participation of faculty in the internationalization process and when presenting some of the most frequently used and successful academic program strategies.

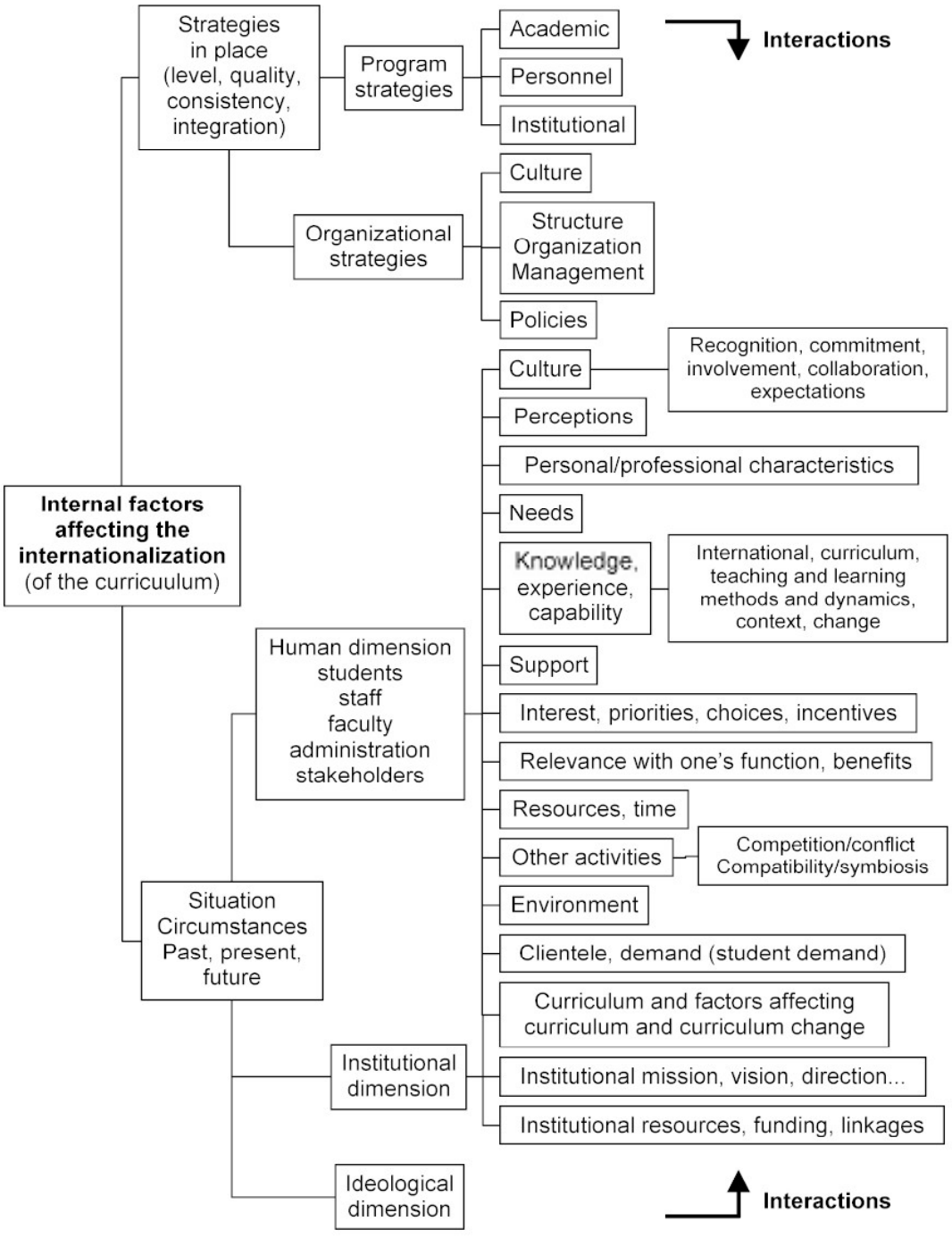


Figure 7. Internal factors affecting the internationalization of the curriculum.

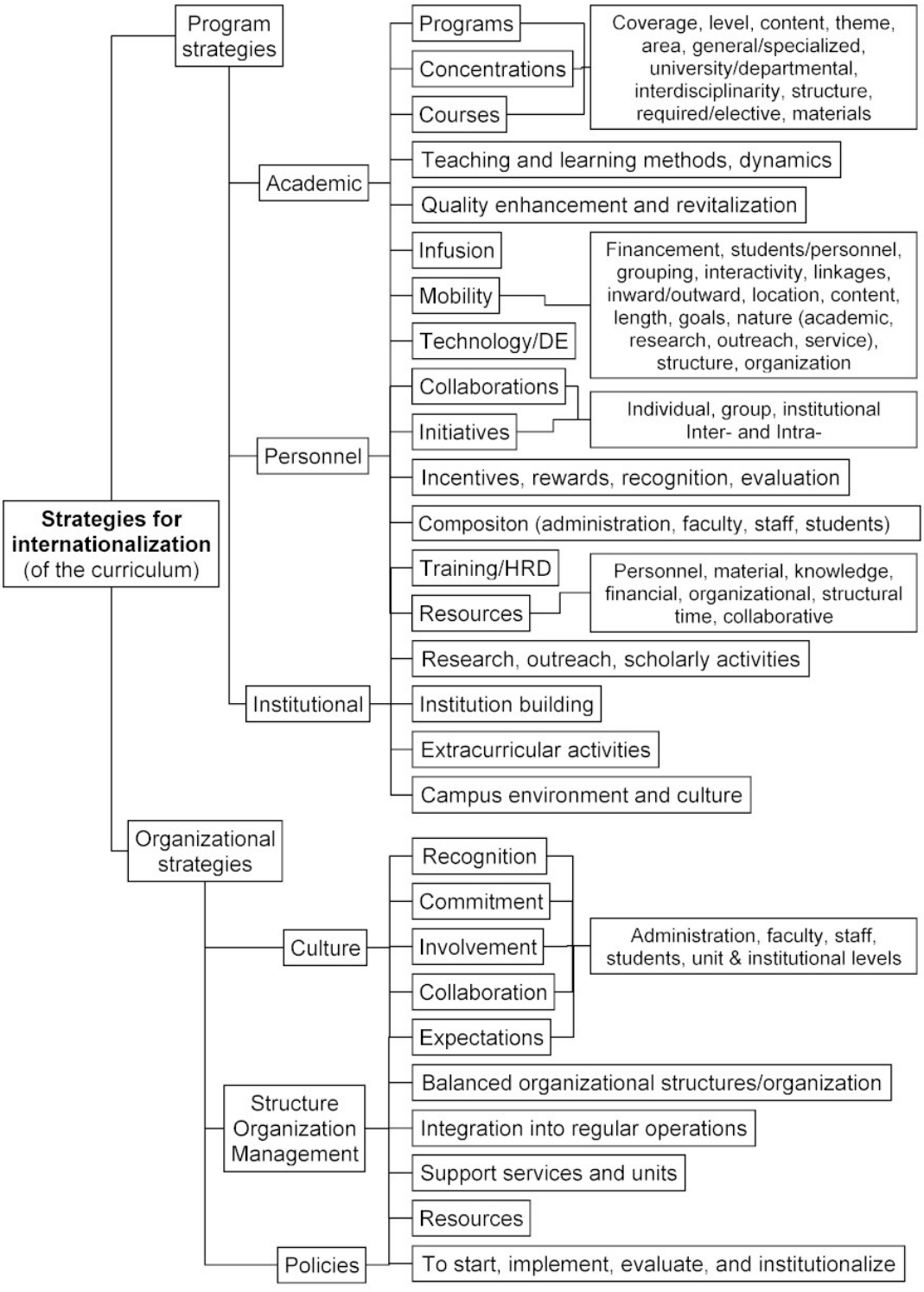


Figure 8. Strategies for internationalization of the curriculum.

3. FACULTY PARTICIPATION IN THE INTERNATIONALIZATION OF TEACHING

Faculty are often mentioned as the main drivers and actors of the efforts to internationalize teaching. It is surprising to note, however, that, although most authors have recognized for decades the pivotal role of faculty in internationalization efforts in programs of higher education, at the beginning of the 1990's there was still not much written about the perceptions of faculty (Carter, 1992). During the past decade, there has been a "gradual acceptance of the internationalization of higher education as an area of research" (de Wit, 2002, p. xvi), much has been written about internationalization, and some of the issues involving internationalization are very well documented. There is still little to be found, however, concerning the perspectives of *all* faculty (as opposed to the perspectives of faculty directly involved in internationalization).

In this section, the researcher analyzes some of the factors that directly affect participation of faculty in the internationalization process, and presents some of the strategies that can be used to support directly faculty and their efforts. The contents of this section is summarized graphically in Figure 9.

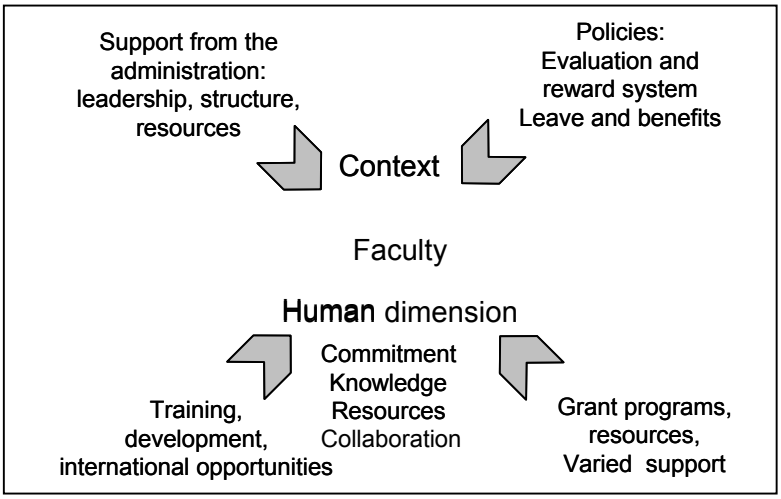


Figure 9. Summary of strategies to directly support participation of faculty in internationalization efforts.

3.1. The context

Faculty are key to the internationalization process (AIEA, 1995a; Carter, 1992; Leibold, 1997; Liverpool, 1995; NASULGC, 1993). They have worn and still wear many of the hats needed for the internationalization of their campuses. For most faculty, the level of effort that they devote to this process is often far above and beyond their responsibilities. It is also far beyond what the institution gives them credit and resources for. As Carter (1992) put it:

> Faculty efforts to internationalize their curricula and departmental programs occur in an academic context that does not readily acknowledge the importance of our international perspective in a student's educational experience. (p. 40)

If it is accepted that faculty are central to the success of internationalization efforts, then the question becomes: How do we encourage faculty to make these changes? This section reviews some strategies (in no specific order) to encourage and support faculty throughout the internationalization process.

3.2. Human dimension: Faculty "acceptance" of the importance of internationalization, motivation, and commitment to internationalization

"Faculty beliefs, perceptions, and interests can be so fixed that any attempt to redesign and redirect a college curriculum is viewed with considerable skepticism, if not outright fear" (Johnson, von Bargen, & Schinstock, 1995, p. 54). According to Shetty and Rudell "the first step towards internationalization involves developing an appreciation among the faculty and administration of the need for and the direction of change" (2000, p. 3), and, according to Hall and Hord (2001), an institution will not change unless the people within it change first.

Concomitantly, the degree of enthusiasm, motivation, and commitment of faculty and administration to the internationalization process is key for the implementation and success of the change process (Lunde, 1995b). Brandt (1992) (as cited in Leibold, 1997) argued that "faculty must 'internalize' the value of internationalization as a prerequisite to involvement." For example, Leibold (1997) indicated that important factors of low levels of internationalization in America's MBA programs were the lack of

faculty interest and the fact that internationalization's importance "has not yet been accepted by many higher education faculty in the United States" (p. 1). Also, Kwok and Arpan (1994) reported that according to their study, low levels of faculty interest ranked as the second most important obstacle for the internationalization of U.S. institutions. This low level of interest is a serious obstacle for internationalization, especially because if faculty are not interested, they won't do it: "Change in curricula ultimately should be a bottom-up process requiring faculty involvement and ownership" (Singha, Skaggs, & Nelson, 1996, p. 124).

3.3. Strategies to support participation of faculty in the internationalization process

This section reviews the most frequently cited strategies that help support participation of faculty in the internationalization process, namely institutional, organizational, structural, and administrative support, training and development opportunities, consideration of international activities in the evaluation and reward system, grant programs (for financial or other resources), and flexible (leave) policies.

3.3.1. Support from the administration

Although many authors agree that faculty are the key to change and internationalization of the curriculum, they also indicate that the support of the administration is essential (Ellingboe, 1997b; Goolrick, 1995; Liverpool, 1995; Lunde, Baker, Buelow, & Hayes, 1995). In that sense, Harari (1992), wrote that "the notion that the curriculum and curricular change are entirely the prerogative of faculty members might be technically correct, but it is also something of a myth if we are concerned with the continuous growth of a dynamic institution" (p. 72). Then, he further explained his statement:

> Faculty members are supposed to create and teach curricula but it is unreasonable to expect them to be able to scan the future needs of society through the narrower groove of their respective disciplines and to decide consequently how the overall curriculum should be refined or developed. They need assistance. It is indeed the

> responsibility of educational leaders . . . to exert gentle leadership and guidance in helping . . . interpret future societal needs to the teaching faculty . . . provide the 'vision' and 'leadership' which higher education needs collectively as well as institutionally. (p. 72)

Similarly, Singha, Skaggs, and Nelson (1994) indicated: "Most faculty members are open to change, understandably some more than others. However, they must be provided assistance in curricular revision, especially in recognizing what is being planned and what is its relevance and value" (p. 124).

This support may take many different forms, such as leadership, vision, intellectual guidance, or simple encouragement (EUOIA, 1995), resources for institutional, organizational, and management structures that facilitate internationalization efforts, financial support for faculty (e.g., faculty development opportunities, release time), funds for specific programs (e.g., monies for departmental program and curriculum development, support personnel), favorable policies (e.g., recognition of international activities with respect to reward and promotion), etc.

3.3.2. Faculty training, development, and international opportunities

Faculty interest and administration's support by themselves are often not enough because "faculty are not in a position to impart international knowledge and vision if they do not possess it" (Shetty & Rudell, 2000, p. 3-4). "Major changes in higher education will not happen unless learning resources are provided for faculty as they become instruments of this change" (Lunde, 1995a, p. 24; see also ACE, 1996; Boyer, 1987, 1990; Cogan, 1998; Graham, 1998; Lunde, 1995b; Nelson, 1996).

When dealing specifically with internationalization, some faculty are passive, unaware, or lack understanding of the internationalization imperative, while others are unprepared to participate successfully in the process, some because they have not had international experiences, others because ways to internationalize their curriculum are unknown to them or they have not been able to connect their international knowledge with their teaching responsibilities. In consequence, effective internationalization will

also have to go hand in hand with faculty development opportunities, a vital and integral component of the process (Backman, 1993; Ellingboe, 1997a; EUOIA, 1995).

Leibold (1997) argued that lack of faculty training is one of the most important barriers for internationalization, adding that the most globalized U.S. programs do "provide for formal training and international interaction for their faculty" (p. 2). Hamrick (1999) indicated that "faculty are ill prepared to infuse the curriculum with international objectives or processes" and that "faculty development is an absolute necessity if campuses are to become internationalized" (p. 3). With his argument, he proposed several solutions to remedy low preparation of faculty, including providing faculty with international experiences and professional development in international issues (Hamrick, 1999; see also Ellingboe, 1997a; Graham, 1998; Whalley, 1997).

Harari (1992) indicated that the competence of faculty is one of the important factors influencing the quality of internationalization in an institution, and he suggested that "the percentage hoped for . . . students going abroad . . . should be applied also to . . . faculty members" (Harari, 1992, p. 70). He also indicated that one of the most important roles of the senior administrators is the support of faculty development opportunities. Others echo this perspective and point out that administrator's "sustained encouragement of faculty to develop international . . . expertise relevant to their disciplines is the only effective way to internationalize a campus" (Wood, 1995, as cited in EUOIA, 1995).

"The meaning of the term 'faculty development' may vary, however, and it has indeed been defined and refined in higher education over the past two decades" (Lunde, 1995a, p. 14). Following is a summary of some of the most common strategies for faculty development used in internationalization initiatives:

- Facilitating faculty participation in national and international conferences and workshops. These workshops can deal with in different topics, including focus in specific global issues, or training about the teaching and learning process;
- Organizing retreats and workshops to help faculty understand the internationalization process, or to support them in their curriculum development

endeavors (these could be university-wide, departmental, unit-based, or just for a group of volunteer faculty);

- Supporting collaborative discussion groups among faculty willing to “champion” the internationalization process, and providing them with resources for the group’s intellectual development; likewise, supporting and facilitating faculty interdisciplinary efforts, working teams, and interaction among colleagues;
- Expanding library holdings and international reference materials, and creating a specialized reference center;
- Supporting a forum for faculty to reflect and integrate internationalization strategies, share results and experiences, disseminate results, collaborate, and develop new ideas and curricula. These could be at the departmental level, or as interdisciplinary endeavors, with faculty from other departments, external partners, and students;
- Providing internationalization support specialists (staff) to help faculty with their endeavors, and facilitating face-to-face consultation with specialists (consultants) about development of learning experiences and improvement of teaching;
- Assuring (through policy, funds, and organizational structures) faculty participation in international experiences, both short and long-term, that may range from participation in conferences, to sabbaticals abroad (e.g., to study a foreign language, explore a second supporting discipline, conduct research, teach, develop new programs and curriculum);
- Supporting work that include collaboration with colleagues and research groups in other countries. This support may involve funding for travel, discussed above, but also may include seed funding to explore specific research projects and write joint grant proposals, giving faculty access to communication technologies in order to facilitate networking and collaboration, and facilitate visits of the foreign colleagues, among others;
- Supporting faculty research on international topics;
- Supporting faculty participation in international development projects;

- Providing funds for the “faculty development” paths chosen by individual faculty or groups of faculty.

It may seem clear to some that there is a relationship between faculty development (and international research and experiences) with faculty participation in the internationalization process, but it is important not to assume that this relationship is resolved with a simple cause-effect formula. Lack of faculty development opportunities in the international arena, training, experience, or knowledge, is not the only barrier to internationalization of the curriculum. According to Carter (1992), “even those faculty who have an academic background in the international areas have little opportunity to incorporate that focus in their departmental assignments” (p. 41). For example, for years, faculty involvement in international development activities was used as an example of the “high” level of campus internationalization. In recent years, however, many scholars are questioning the cause/effect relationship between involvement in international development activities and internationalization of a campus and the curriculum. Nolan, for example, explained in a personal correspondence with French (1992):

> While there is [*sic*] obviously some parallels between the two things there are also considerable differences. . . . It is easy for a president or chancellor to see (technical assistance) involvement as a great example of how one can go about internationalizing a university without having to spend any of your own money to do it. . . . At times I worry that none of our current long-term team members in Kenya are faculty members. (p. 135)

Henson et al. (as cited in French, 1992) conducted a survey to research this relationship, and found that development assistance has influenced the internationalization of education in *a number* of subject matter areas and that most highly internationalized universities had participated in international development activities. However, they also found that more often than not, participation in internationalization activities had not impacted the university curriculum. In view of these results and looking back again to the possible cause/effect relationship between faculty knowledge and internationalization of the curriculum, we can’t do anything but ask how could curriculum development and curriculum internationalization benefit from

faculty knowledge, experience, and training. According to Yates (1984), some mechanisms have to be created. For example, French (1992) surveyed international education administrators to find out if universities had implemented any mechanisms "to assure that international development activities are integrated into and deliberately coordinated with programs/activities on the home campus" (p. 134). They found that less than three-fourths of the respondents indicated that they had mechanisms in place. Looking at the positive responses, he found a high variability in the approaches utilized, and one common answer indicated that there were mechanisms, but they were not 'formal,' and they were not at the institutional level, but at the unit level, which supports the results from Henson et al. (as cited in French, 1992) who indicated that international development activities infused *"some"* subject matter areas.

3.3.3. Include participation in international activities in the evaluation process and reward system

One of the most commonly mentioned incentives to encourage faculty to participate in the internationalization process is to include participation in international activities in the evaluation decisions (tenure, promotion, and salary increases, and recognition) (AIEA, 1995b; Backman, 1993; Ellingboe, 1997a; EUOIA, 1995; Etling, 2001; Hamrick, 1999; NASULGC, 1993; Shetty & Rudell, 2000) or to remove the "unintended punitive consequences" for participating in international activities (Liverpool, 1995, p. 6). For example, Leibold (1997) found that the most internationalized MBA programs were those that counted the faculty member's efforts in internationalization for tenure and promotion considerations. The problem with this 'solution' is that some faculty feel that even if there is a university directive to include internationalization efforts in the tenure and promotion process, this might not be the case for their particular head or department. Therefore, for this "policy" to be effective, it is important that it be "enforced" at the departmental, college, and university level.

However, including participation in internationalization activities in the tenure, promotion, and salary increase decisions has also its drawbacks, and may lead to abuses. For example, Etling (2001), cautions that "international tourism should not be

rewarded, [only] international work . . . [that] demonstrates excellence in scholarship, and produces beneficial results for clients, should be encouraged and rewarded" (p. 5).

Other systems to promote internationalization and faculty willingness to participate in the process are to give (after the fact) recognition, grants, and financial awards to faculty members or to programs who have successfully internationalized their curriculum (ACE, 1996). On occasion, these financial awards may be in the form of monies to spend in a specific program, or even as a permanent salary raise for the faculty members involved, and they may come with the request to write a report or to speak to a group of faculty about their experience, so others can benefit from the path these innovators have taken (Lunde, 1995b).

Likewise, by deliberately giving preference in the recruitment phase to candidates with international experience and commitment, and, preferably, also with experience in internationalization of the curriculum, the institution could advance in long strides toward a more internationalized faculty body, campus environment, and curriculum, which might, in turn, facilitate the internationalization of other faculty, students, and curriculum (AIEA, 1995b; Backman, 1993; Ellingboe, 1997a; EUOIA, 1995).

3.3.4. Flexible leave policies

According to NASULGC (1993), restrictive leave and benefits policies at many institutions inhibit rather than encourage the involvement of faculty in international projects and travel. In consequence, NASULGC proposes more flexible policies as another type of encouragement for faculty to participate in internationalization activities.

3.3.5. Grant programs

Grant support for internationalization can come in many different forms, from releasing resources for institutional and structural changes to "financial" aid, which are most popular among faculty members, and one of the most common strategies adopted by universities and colleges to support internationalization efforts. These are incentive "funds" to help support faculty members with innovative ideas and international initiatives by providing them with the necessary resources (financial, time release,

support personnel, travel expenses) to explore a project (or even fund it in its totality, depending on the size of the grant). Sometimes the grants are very broad and only require having an international component, and may fund a semester sabbatical abroad, a new "student virtual learning center," support curriculum development of on-campus and off-campus courses, or even buy a new computer. Other times, they are limited to very specific types of project, such as planning stages of new study abroad courses, faculty travel to present their work in international conferences, money for faculty development workshops, etc. (ACE, 2002a; University of Georgia International Fellows Program [UGA-IFP], 2002; Shetty & Rudell, 2000). These grants often involve "liquid monies," but they may also provide opportunities for faculty release time (with the subsequent payback to the faculty member's department) and support personnel. It is important to note, however, that "mini-grants alone may not be sufficient to change faculty approaches and behavior, but when combined with [other] opportunities . . . faculty become re-energized" (Lunde, 1995a, pp. 24-25).

Grant programs to support student participation in mobility opportunities are also a means to support faculty participation in the internationalization process, partly because it facilitates their student recruitment efforts, and increases the likelihood of student participation in the programs they are developing.

3.4. Percentage of faculty participating in the internationalization process

The hope that most faculty in a university, college, or department would immediately start participating in the internationalization process by changing their curriculum and by participating in faculty development activities, probably is not a realistic expectation, not only because of the faculty *per se*, but also because of the difficulty the higher administration of that institution would have in managing the changed environment and in producing enough funds to support it. According to Foster (1999), "there must be a critical mass (but not necessarily a majority) for change to occur" (p. 73). "We estimate that a critical mass of fifteen percent of the faculty is sufficient to carry forward the movement to internationalize an institution" (Harari, 1992, p. 69). In addition, one important factor that determines the level of participation of faculty is precisely the

participation of other faculty, who lead by example, provide precedents, open doors for new programs, and establish synergistic collaborations.

4. ACADEMIC PROGRAM STRATEGIES FOR INTERNATIONALIZATION

"There is no debate about whether or not to internationalize, but only about the best strategy to use" (Shetty & Rudell, 2000, pp. 1-2). “Many authors are struggling to define what an international education should be and how the various strategies for achieving this competence compare” (Kezar, 2000). In that sense, most agree that there is no single approach proven to be optimal (Kwok & Arpan, 1994), no “single silver bullet cure” (Brock, 1993, p. 2), and options chosen by different institutions range from simple, isolated actions, to a radical transformation (and rebirth) of a system. Regardless of the strategies chosen, internationalization scholars indicate that the process should be viewed from a cohesive and holistic perspective, and that it needs planning, implementation, and evaluation (Whalley, 1997).

Each strategy should be viewed as one part of a larger, integrated endeavor. The options are not mutually exclusive, and, in an ideal situation, an institution could use all of them. However, not all approaches may be adequate in all occasions: It is important to assess each choice according to the individual institution and its particular situation and moment, which will depend on many different factors, including internal factors (university mission, administrative commitment, programs in place, university environment, culture and history, personnel, finances, availability of resources, leadership, constituents, location, structure, and the desired level of internationalization), and external factors (societal changes and globalization, external perceptions of image and identity, evaluation of trends and opportunities in the international marketplace, state legislature and governing boards, and an assessment of the competitive situation) (Keller [1983], as cited in Davies, 1992; Shetty & Rudell, 2000). As Brock (1993) summarized it:

> No single act will transform the incredibly diverse world of higher education into an enterprise routinely producing graduates with all of the qualities, competences, and attitudes we would hope for them. . . . [It] will require of each institution—campus by

> campus—honest introspection and some very hard and even controversial new thinking about its roles and responsibilities, principles, and priorities. (p. 2)

This section provides an annotated list of the most commonly used academic strategies for curriculum internationalization, in no particular order.

4.1. Strong international content in the core curriculum, international credit requirements, and language programs

Some institutions opt to include courses with international content in the core curriculum with no specific requirements for the students. Other universities or colleges require their students to take 'international' credits, sometimes from courses to be found in the core curriculum, in major-specific courses intertwined with departmental requirements, and sometimes as independent requirements (ACE, 2002b; AIEA, 1995b; Goolrick, 1995; Kwok & Arpan, 1994; Liverpool, 1995; Texas Special Committee on Globalization and Higher Education, 2001). In most cases, all these credits can be fulfilled with on-campus courses. According to de Wit, "in the United States, internationalization is seen as part of general education, while in Europe it is seen more as an activity within academic specialization" (2002, p. 77).

One option singled out by many universities and colleges is the strengthening of language programs, which is, in fact, one of the first and most referenced strategies for internationalization of the undergraduate curriculum. One important landmark in these efforts is a report from the President's Commission on Foreign Languages and International Studies (1979), that stated "The President's Commission believes that our lack of foreign language competence diminishes our capabilities in diplomacy, in foreign trade, and in citizen comprehension of the world in which we live and compete" (p. 6). The quality and strength of language programs is key for a successful start and implementation of the internationalization endeavor. Therefore is necessary to assure that the scope and depth of language programs is aligned with the goals of the institution. As John Foster Dulles observed half a century ago (as cited in Liverpool, 1995), "it is not possible to understand what is in the minds of other people without understanding their language, and without understanding their language, it is impossible to be sure they understand what is on our minds." According to Liverpool (1995), the

responsibility of foreign language teaching should not be in the hands of language departments or colleges of arts and sciences, but on the hands of the entire university community. In fact, it is increasingly common for professional schools to offer specialized language courses to their students.

4.2. Infusion

Many authors argue that internationalization should not be a marginal concern affecting only some students, but "a central concern of mainstream educational planning and management" (Kameoka, 1996, p. 35). If internationalization is to diffuse across the curriculum and affect all students, then, for some, the strategy to use would be “infusion.” *Infusion* is understood as the integration and incorporation of international context, concepts, and content “into the fabric of [all] existing courses” (Faustman, Riesen, Suter, & Vietor, 1996, p. 74; see also Reiff, 1997), including core curriculum classes and specialized departmental courses for advanced major students in professional schools (Shetty & Rudell, 2000). According to Backman (1993), infusion is based in the idea that internationalization:

> Is not a separate curriculum that is in competition with other subject areas. . . . Is not a specific disciplinary domain, but rather a perspective that diffuses across the curriculum, formally and informally, in varying degrees, and in differing methods. . . . Is represented by the activities and behavior of teachers; the content of what students are taught about their world; the methods used in teaching; and the social context of where teaching and learning takes place. (p. 33)

There are different practices that help the infusion process, and include: Rethinking goals, redesigning learning objectives, restructuring lessons and topics covered, and updating readings and assignments, changing teaching and learning methods to adapt to a more internationalized process, using audiovisuals, increasing number of, and internationalizing, student centered activities, case studies, simulation activities, discussions, think tanks, modeling, self-reflective writing and analytical exercises, encouraging interdisciplinary foci and work in diverse groups, inviting resource speakers and using [international] student body resources, using international examples, and analyzing, comparing, and contrasting systems (King & Martin, 1994; Navarro, 2003;

Sammons & Martin, 1997; Whalley, 1997). In addition, infusion is appropriate to use at any of the conceptual levels of global education: Basic knowledge, formation of an attitude, and an application of processes (Backman, 1993).

Infusion is probably the internationalization strategy most discussed, supported, and criticized. It is also understood in different ways. Supporters explain that infusion is possible even under extreme financial constraints (Backman, 1993), and not only facilitates internationalization but also strengthens and revitalizes the curriculum (Cogan, 1998) and that it is a valid way to reach most students (Acker, 1989; Harari, 1989, 1992; Kwok & Arpan, 1994; Shetty & Rudell, 2000; Tonkin & Edwards, 1981). For example, the Texas Special Committee on Globalization and Higher Education (2001) presents a widely accepted discourse about the goodness of infusion:

> International education is not something rarified and separate to be imparted to a privileged group but an international education must pervade curricula. . . . Only by infusing the entire curriculum with an international dimension can we ensure that **all graduates** possess the global perspectives essential in the 21st century. (p. 7)

However, not all scholars consider this a true statement. For example, Bremer and van der Wende argued that "whether the strategy of [infusion] . . . offers more students an international study experience and to what extent these experiences are comparable to those obtained by mobile students can only be answered by further research" (1995, p. 43). Also, detractors claim that infusion as it is practiced today falls short and it does not provide students with what they need to be truly internationalized, that real infusion *throughout* the curriculum is not practical nor feasible (with the most common rationales being time constraints and disciplinary constraints), and that in the hands of less-than-adequate educators, infusion becomes a cut-and-paste game (Lundy Dobbert, 1998).

Many scholars indicate that infusion is a continuous process of curriculum improvement that needs training and encouragement, an "integral part of the educational experience" (ACE, 1996, p. 5). Infusion is not a matter of adding or repackaging courses and materials, but about changing the essence and reformulating the purpose, and looking at content as well as skills, awareness, and attitudes (ACE, 1996; Harari, 1992; Liverpool, 1995). For example, according to Backman (1993), infusion of international contents is appropriate to all disciplines (just as is reading), it is

an analytical framework and methodology, and it involves emphasis on problem solving, critical thinking, and team building. When explaining infusion from the perspective of colleges of agriculture, Acker says: “It is not just a matter of choosing courses that will orient the student to the world; it is a matter of teaching professional agricultural subjects from an international perspective” (1989, p. 13).

4.3. Courses with an international focus

In some courses, the infusion with international concepts and content may have been accomplished to a level that some people might consider them courses with an international focus (and label). This section, however, refers to courses developed specifically with an international focus, or, as Graham (1998) calls them, “designated” international courses. One of the criticisms that this strategy receives is that it adds to the students’ already full course load, and it is a poor alternative to mobility programs. Proponents of the strategy argue that it is not just an alternative –although sometimes an alternative of higher quality than some short study abroad “vacation” packages,” but a definitive starting point for students who have never studied abroad, and that they are very important for the students to acquire a theoretical basis and analytical perspective without which mobility opportunities might not be well processed, understood, and taken advantage of. Also, in professional schools, scholars argue that these courses help the students understand better why global issues and international perspectives are important for them, not just as individuals, but also as professionals.

These courses span the core curriculum and interdisciplinary courses targeting students from all majors, to college and major-specific courses and departmental seminars. Some of the most acclaimed examples are interdisciplinary courses within colleges or professional schools (e.g., international agricultural development, tropical systems, and world food issues).

Some authors note that interdisciplinary courses and “designated” international courses accomplish similar goals (AIEA, 1995b; Harari, 1989), which is challenging students to address an issue in many different ways, and showing them that there are always evident and latent interactions – even conflicting interactions - between the many parts of a whole (e.g., of an agricultural system, of the world). Most importantly,

these courses help the students to appreciate and learn to use a global and holistic perspective, and recognize – and value - the complexity and diversity of the world (Allen, 1992; Baker, 1995; Freedman, 1998).

4.4. Concentrations: Area studies, certificates, international and international development studies

Many institutions offer area studies (e.g., African studies, Latin American and the Caribbean studies) concentrations (certificates, majors, and minors). Some institutions have accomplished an admirable interdisciplinary program in which faculty from all colleges and departments are involved. In this case, students can take courses ranging from agriculture to philosophy with a concentration from a specific area, as well as studying abroad in that area. In other cases, the area studies are more limited and faculty from a specific department or college dominate the program and curriculum.

As it was the case with area studies, many institutions also offer “international studies” concentrations. There are different types, with similar thrusts. The general philosophy is to offer the concentration as a liberal arts major field intended to provide students with a strong background in the study of international issues. On occasion, these majors strive for interdisciplinarity and it is suggested that students take courses outside the social sciences/humanities areas such as courses in business or in professional schools.

More applied than the “International studies” options, “International development” programs are often interdisciplinary. However, on occasion, a specific professional school may dominate the program. Within the specific school or college, these programs are quite interdisciplinary. The most common ones are international agriculture and international business.

Some universities offer just one or two of these “concentrations,” while others strive to establish an “’international track’ in every appropriate discipline” (Virginia Tech, 1997, p. 12).

4.5. Student mobility

Student mobility was one of the first options used and generalized for the internationalization of the curriculum, and it is probably the one that receives most attention, resources, personnel, and publications. In fact, there are still people that use student mobility as a synonym for internationalization of the curriculum. Some of the most common justifications for study abroad programs are that they offer students the possibility to interact with other cultures and peoples, experience new situations, and acquire knowledge different from the one they would gain at home. Liverpool (1995) explains mobility with the following words:

> While internationalization of the curriculum [as in infusion] is a key element in developing a global mind-set among our students, it should be complemented by cross-cultural and practical experiences abroad that educate students about problems and issues that cut across specific disciplines and regions of the world. . . . Studies have shown that study – and work – abroad programs result in life changing experiences for our students. These students tend to develop greater awareness of world affairs, greater maturity and interpersonal skills, and a reluctance to perpetuate cultural stereotypes. (p. 3)

During the 1980's and 1990's, student mobility increased in significance and in quantity (van der Wende, 1994), and it is still growing today. In fact, increasing the number of students participating in study abroad and exchange programs seems to be one of the priorities of many U.S. universities, as it transpires in many university-wide goals and documents. As a result, according to the Institute of International Education (IEE, 2003), the number of U.S. students going abroad increased 126% during the 1990's decade, and rose to a total of 160,920 students in academic year 2001-02. In spite of this growth, however, percentages of U.S. students going abroad is still very small, at "about 0.8 percent of total enrollments per year and 3 percent of students during their undergraduate studies" (ACE, 2000).

As the quantitative goals are being met, "attention now turns to the qualitative aspects of international student mobility" (van der Wende, 1994, p. 7). Universities and scholars are starting to analyze which should be the learning outcomes of study abroad and exchange programs, and are calling for research on the outcomes evaluation

(English, 1998) and the comparison of different types of mobility and foreign study programs. One of the most debated questions concerns the usefulness and effectiveness of resource use of short-term study abroad programs in which students are only in contact with their peers and with faculty members from their universities. Some people argue that these programs are a “waste of time and money,” others indicate that they are a good starting point, while others are happy to keep them as ending points and value their numbers as much as those of semester-long exchange programs. To this end, for example, the University System of Georgia started (results not yet available) a State-wide study analyzing student-learning outcomes from exchange programs and study abroad summer experiences (University System of Georgia Office of International Education [USG-OIE], 2001).

4.5.1. Format and length

There are numerous formats for student mobility that differ in disciplines covered, length (from 2-3 weeks to a full academic year), and format (origin of faculty, degree of “protectiveness” given to the student, characteristics of residency, structure, advisement, cost, cohort system, etc). According to the American Council on Education, “study abroad participants overwhelmingly remain social science and humanities majors and exhibit little ethnic or economic diversity” (ACE, 2000, p. 1). In addition, when comparing the 1980’s and 1990’s study abroad numbers, ACE also indicates that there has been a shift toward shorter periods of study: “The number of students spending more than a semester abroad shrank from 18 percent [in 1985] to 10 percent [in 1997]” (2000, p. 1), with similar results reported by the Institute of International Education (IIE), that indicates that in 2001-02, 91% of U.S. study abroad students participated in programs of one semester or less.

Following there is a rough grouping of some of the study abroad choices available to U.S. students:

4.5.1.1. Short-term study abroad

These are 2-3 week courses on a specific topic (e.g., art history of Italy, the rainforest biodiversity), and take place in a foreign or group of foreign countries. More often than not, the students take the course with instructors and students from their own university, and sometimes these courses are open to students from other universities in order to increase student numbers. On occasion, these courses include language training and stays with in-country host families. Some are experiential, some aren't, some require students to do self-reflection and keep a journal, while others don't address openly any issues related with student's cross-cultural experiences. In most cases these courses are taught in English.

4.5.1.2. Cohort long-term study abroad

Students travel abroad with a cohort group of students from their university. They register in a number of courses, that they take with students from their cohort, and, in many cases, with instructors from their university. In most cases the courses are in English. Students may stay at the dormitories of another university, in host families, or in a hotel with the rest of students from their university. On occasion, U.S. institutions buy residencies for their cohort long-term study abroad programs. In some cases, students are allowed to take non-cohort courses with a collaborating in-country institution.

4.5.1.3. Student exchange programs

As the name indicates, this rubric is based on an exchange. A U.S. student registers in his/her home university and is simply swapped for a student at a partner institution that in his/her own turn has also registered at home. Neither of the students is required to pay any extra fees, and both receive credit from their home institution for the courses taken abroad. This system involves a balanced exchange (on a one-to-one basis), and it is common that there is more demand of students from the partner institution to come to the U.S., than for students from the U.S. to choose to go to the foreign country. It is common for exchange programs to have a duration of at least one semester.

There are many variations of the exchange. Most of the time students register in classes and go through the semester as one more regular university student. In many cases, they participate in a special program, where language classes, internships, in-country travel and visits, or laboratory experiences are integrated and constitute an important part in the exchange curriculum.

Exchanges are usually based on formal, inter-institutional agreements at the university level, although they are usually initiated by individual faculty, departments, or colleges. These agreements are often called memoranda of understanding, sister institutional affiliations, or letters of intent (Klasek, 1992a). These agreements are sometimes used not only for student exchanges, but also for faculty exchanges, joint research, and development/technical assistance programs.

4.5.1.4. Individualized programs

These usually involve students who desire to go to a determinate country or want to take very specialized courses that are only offered in specific institutions that do not have an exchange agreement with the student's university. In this case, the option for the student is to get his/her department to agree to allow the student to register at the foreign university and approve the transfer of credits to count toward the major.

Another variant for this rubric is led by specific academic units that will allow students get home credits for course work done abroad. For example, a foreign language department might decide that they do not have enough resources to teach a specific language, or that they can't organize themselves study abroad programs in all of the languages and cultures they are responsible for teaching. The academic unit might choose instead to identify specific programs in other countries that are adequate for their own students to get the desired language classes and cultural experience abroad, and grant credit for all of them.

4.5.1.5. International internships

As are national internships, these might be more or less structured, short or long, with an in-site advisor or without, paid or unpaid. They might be working with local

businesses, government, non-profits, research and teaching institutions, or international corporations.

4.5.1.6. Consortia arrangements

An increasingly popular arrangement because it helps universities, departments, and programs cope with funding and personnel shortfalls. It is a system to contribute faculty and students to specific programs offered to a large number of universities, while sharing the costs of administering the program. The system does not result in a less expensive program for the student, but it gives the student the opportunity to participate in a program not offered directly by his/her university. These arrangements are especially adequate for students at institutions that would otherwise be unable to organize programs of their own.

4.5.2. Destination

Historically, most U.S. universities concentrated efforts in Great Britain and Western Europe as destinations. Many authors indicate that if we are to provide students with a real global education, then institutions should present a wide geographical and cultural diversity in the opportunities offered (Aitches & Hoemeke, 1992; Liverpool, 1995). This is the trend that institutions are taking today: Offer a wider diversity of options so that students can chose to study abroad anywhere the world, from the most industrialized countries to some of the poorer countries in the world, from cultures very similar to their own, to cultures and languages previously unheard to some of them.

As a result, the number of students going to less traditional countries to study is growing, specially those going to Central and South America (with Costa Rica, Chile, and Ecuador leading the list) although Europe is still the preferred destination (63% of the students), with Great Britain, Spain, and Italy being the most popular destinations. Other regions that are seeing an increase in numbers are Oceania (Australia, New Zealand), Africa (South Africa), and Asia (China, Japan), while the Middle East suffered a considerable decline (IEE, 2003).

4.5.3. Accessibility and affordability

It is not a secret that the cost of mobility opportunities limits considerably student participation (Wattiaux, Rowe, & Shapiro, 2001). The issue of accessibility and affordability has often been addressed showing that there is a clear need to strengthen accessibility and broaden student participation (Aitches & Hoemeke, 1992; Goolrick, 1995; Texas Special Committee on Globalization and Higher Education, 2001). The U.S. Institute of International Education "is working with campuses and U.S. government and private sponsors to reduce the financial hurdles for study abroad" (IEE, 2003, p.1). There are examples of universities that are establishing systems that will allow for more students to have the option and opportunity to study abroad, mainly through scholarships, facilitating financial aid options, offering more cost-effective programs, with better recruitment, new information channels, broadening and diversifying geographic destinations and program types, and addressing some cultural and social barriers that have prevented a wider diversity in student participation.

4.5.4. Credits and recognition

One of the major barriers for student mobility (especially long-term mobility) and a topic of discussion among institutions, faculty, students, and staff, is recognition of the value of study abroad. Many students, when considering mobility programs, get discouraged by what seems a way to extend their university experience one more semester. On countless occasions, university leadership, offices of international education, and proponents of international education among faculty have indicated that this should not be the case. However, students still think (and hear the message from fellow students, advisors, and parents) that mobility programs will delay their graduation (Wattiaux, Rowe, & Shapiro, 2001). As Liverpool (1995) puts it: “We must link the international exchange experience with the curricula as a part of the normal uninterrupted process of acquiring a degree” (p. 4).

But recognition of international experiences does not have a black-and-white answer, and van der Wende (1994) has devoted a book to discuss the issue. In her book, she indicates that one of the major benefits and quality indicators of foreign study is the value of the difference between experiences and knowledge gained abroad compared

to what would have been acquired at home, and it is precisely at this difference where the real dichotomy raises. The more different the experience is, the more difficult it is to compare with local learning outcomes, and, therefore, the more difficult it is to recognize and to transfer educational credits. Also, there are obstacles when comparing the different teaching styles and assessment systems between the home institution and the foreign country institution in the case of student exchanges, incompatibilities of academic calendars, differences in curriculum content and requirements, differences in quality, and administrative and organizational difficulties.

4.6. Virtual mobility

"Some argue that the university answer is to go virtual. . . . Maybe so. Maybe not." (Hibbs, 1997, p.3). But what most agree is that communication technology is facilitating change and progress in educational institutions to happen more quickly (Foster, 1999), including enhancing teaching and learning methods, and updating the curriculum (Faustman, Riesen, Suter, & Vietor, 1996). Communication technology has opened the way to virtual mobility of people, information, ideas, and programs (Kameoka, 1996; van der Wende, 1998), and it has opened the back door for the Pandora's box of internationalization. Van der Wende (1998), in a book entitled, *Virtual mobility: New technologies and the internationalization of higher education,* explained it the following way:

> A totally new form of international higher education is now emerging. Students follow courses offered by institutions abroad, interacting with students and teachers in other countries, and consulting libraries and databases far away. They are not physically mobile, but rather 'virtually mobile.' (p. 5)

When presenting some innovative examples of virtual, worldwide classrooms, Liverpool (1995) says: "These encounters can partially make up for gaps in the experience of students who do not or cannot go abroad and who lack substantial academic contact with people from other countries" (p. 6). But information and communication technologies (ICT) not only offer 'mobility' to our students who for one or another reason, are not able to travel, but also improve teaching and learning processes, encourage creativity, open our education to foreign students (and increase

tuition revenues), increase student options, provide staff development opportunities, expand the possibilities for cooperation and exchange of data and information, enhance communication and interaction between people and institutions, support global research projects, and help improve knowledge and understanding between nations and cultures, all necessary for a sound internationalization (Graham, 1998; Philson, 1998; van der Wende, 1998; Winters, 1997).

However, a number of questions about communication technology, virtual mobility, distance collaborations, and internationalization remain unanswered. For example, some scholars are concerned about possible loss of effectiveness, language barriers, and cultural problems and misunderstandings (Philson, 1998). Other authors question the transferability, adaptability, and effectiveness of content, format, and delivery methods, while some indicate that a quality virtual mobility program would require a sound restructuring of the institution's academic programs and administrative procedures. Finally, some scholars question if virtual mobility is truly international (van der Wende, 1998). Whatever is the answer to these questions and problems, what is clear is that more and more institutions from different countries are now using ICT for joint projects and educational programs focusing on internationalization.

4.7. Campus environment and culture: Enrichment activities, international faculty, and international students

Organizational and campus culture is very important for the internationalization process. As an institution increasingly values understanding diversity and international issues, its curriculum will be gradually transformed. Internationalization requires institutional commitment, human concern, and a positive institution-wide positive attitude toward internationalization (Aitches & Hoemeke, 1992; Guyon & Klasek, 1991). Campus cultural enrichment activities, and presence and participation of international faculty and students will help promote this institutional attitude.

An example of a campus enrichment activity is the support and advisement of “internationalized” student clubs. One typical example of such clubs is one in which U.S. and international students can share and discuss experiences or talk to students in other clubs about the interests of international education, newly arrived international

students have the opportunity to meet with U.S. students, and U.S. students wanting to study abroad can talk to peers in order to clarify questions and concerns. Other internationalization clubs may group students interested in international development, international agriculture, international films, music, drama, sports, or even dance.

Other cultural activities that can be organized in a university to increase the international awareness around a campus are: Seminars, debates, film shows, especial library sections, international coffee hour, international food contests, international dormitories, international camp week-ends, pot-luck dinners, brown-bag lunches, etc. An outreach activity that is growing in numbers and degree of involvement of the students and the campus community in general is participation in the World Food Day Teleconference and related activities. “Through these activities, the campus culture is transformed and the goals of the internationalized curriculum reinforced” (Whalley, 1997, p. 28).

Another way to enrich and internationalize the campus environment and the curriculum is involving foreign faculty in the process (Ellingboe, 1997a, 1997b; Harari, 1989). These faculty might be visiting faculty from foreign universities, or international faculty from the institution. Surprisingly, this enormous resource is often underutilized (Carter, 1992). A different way to involve foreign faculty is by offering joint curricula with foreign universities leading to joint or double degrees (Bremer & van der Wende, 1995).

And finally, and probably most importantly, international students are also an extremely powerful resource in the internationalization of campus culture and curriculum, as well as "to the education process as a whole" (Kameoka, 1996, p. 35). There are many reasons why universities are interested in having international students. These reasons range from economic (international students and their tuition are an important money influx to universities) and humanitarian (educate the future leaders of developing countries), to cultural (“having . . . foreign students on campus is one way of exposing U.S. students to foreign people and cultures”) (Shetty & Rudell, 2000, p. 5; see also Bremer & van der Wende, 1995; Ellingboe, 1997a; Harari, 1989;). In fact, in a study conducted by Bremer and van der Wende (1995), it was concluded that, indeed, presence of foreign students was very important for the success of

curriculum internationalization efforts, but that in traditional educational settings this "presence" would simply not be enough. As Liverpool (1995) indicated:

> The presence of international students provides economic benefits to our universities and communities . . . [but] our goal must transcend the economic incentive. . . . These students enrich the lives of our domestic students, faculty, and our community. They contribute to the intellectual strength and extend the global horizons of American students both in the classroom and through social interactions. . . . They are a vastly under-utilized resource. . . . We need to employ a more deliberate strategy to better integrate international students into the overall life of the campus. (p. 5)

Other authors agree with Bremer and van der Wende and Liverpool in that international students are extremely underutilized (Flournoy, 1992). Along these lines, Creekmore (1995) explained one of the areas where Emory University was concentrating its internationalization efforts:

> We will seek ways to encourage greater interaction between domestic and international students. We believe the participants will not only gain greater awareness and appreciation of different cultures, values, and belief systems, but will also build lasting friendships. (p. 5)

There are different explanations of why international students are underutilized, but the one offered by Burn (1990) summarizes the impression of many:

> American students tend to be so internationally uninformed, even uninterested, that they hardly know how to strike up a conversation with an international student, especially one from a non-Western culture, let alone develop the kind of relationship which involves important international learning for the American. (p. 27)

Some internationalization education administrators recognize the important role that international students can play in exposing American students to other cultures. This personal contact could signify for many U.S. students, the first, if not the only, step to cross-cultural understanding. This is why there are some programs that recognize international students as educational resources and offer them in-state rather than out-of-state tuition if they agree to devote a number of hours to cultural service.

According to Kuhlman (1992), the Association of International Education Administrators (AIEA) identifies some important musts when enrolling and dealing with international students. These are: A clear purpose and rationale; staff prepared to provide quality assistance before, during, and at the end of their program; maintenance of a balanced cultural diversity; understanding and using efficiently the educational and cultural resources that international students represent; and providing guidance and training of international teaching assistants. It is important to note, however, that spending resources with this strategy usually finds strong opposition, for "many people do not see the connection between sponsoring international visiting professors, scholars, and students on campus and internationalizing courses" (Ellingboe, 1997a, p. 24).

5. SUMMARY OF REVIEW OF LITERATURE

This review of literature provides the theoretical base for the study, by investigating documents and research published by internationalization and curriculum development scholars, analyzing, from different perspectives, what is involved in the internationalization process and what issues and factors could affect the people and the efforts involved, and examining a variety of internationalization endeavors in higher education institutions in search of information to construct a practical picture of the different approaches, strategies, and programs adapted around the world. The review resulted in formulation of a theoretical base of six postulates that provide the rationale for the research questions that were established. These postulates pertained to: 1) Globalization and internationalization, 2) internationalization of the curriculum, 3) faculty participation in the internationalization of the curriculum, and 4) academic program and institutional strategies for internationalization.

Globalization is one of the most commonly used words when describing today's and tomorrow's world. However, “much confusion exists as to the meaning of this term” (Etling, 2001, p.1). The distinction between globalization and internationalization is explained based on the cause-effect relationship they have to each other: Globalization is what is happening in the world; it is the disappearance of boundaries between peoples, countries, and issues, the easier and faster communication between all parts

of the world, the homogenization of the world, the interdependency of the world. Internationalization is what has to be done in order to adapt to this new system, and its definition is context and content-specific.

Internationalization of U.S. higher education is defined as the process of integrating international and global dimensions into the educational, research, and outreach functions of the institution (AIEA, 1995a, p. 7; AUCC, 1998, p. 1; IAU, 1997, p. 1). The rationales for internationalization of U.S. higher education mentioned more frequently are: 1) Academic rationale: Preparing students for productive careers and lives, 2) U.S. economic and political competitiveness, 3) increasing interdependent nature of the world, and 4) cultural and social issues. Similarly, there are many different approaches to define the internationalization of the curriculum, with the most common being the activity, competency, rationale, and process approaches. In the process approach, internationalization of the curriculum is defined as the process of integrating international and global dimensions and perspectives into the formal (structure, content, and materials) and operational (teaching and learning methods, grouping of students, place, and time) aspects of the curriculum (van der Wende, as cited in AUCC, 2000, p. 4).

Many authors indicated that faculty are at the core of any successful curriculum change and internationalization endeavor (AIEA, 1995b; Carter, 1992; EUOIA, 1995; Leibold, 1997; Liverpool, 1995; Lunde, 1995c; NASULGC, 1993; Vietor, John, Thompson & Kunkel, 1996). Other actors identified as important in any curriculum change process are senior administrators (ACE, 1996; El-Khawas, 1994; Ellingboe, 1997a, 1997b; Harari, 1992; John, Townsend, & Nelson, 1996; Nelson, 1996) and students (Aitches & Hoemeke, 1992).

Institutions of higher education have available a score of strategies for the internationalization of their curriculum. These strategies should not be tackled separately, but should be intertwined with each other, addressing internationalization from a holistic perspective. Although it seems clear to most that an internationalization plan should not look at strategies separately, but in combination with each other, it is also conceptually easier to most to analyze and assess the strategies separately before making the decision of which ones to choose, when and how to use them, and how to

make them all fit together. To this end, strategies are often grouped either as “organizational / institutional” strategies or as “academic program strategies.”

Some of the organizational and institutional strategies are strategies used to support faculty in their efforts to internationalize the curriculum, and include administrative support, training and development opportunities, consideration of international activities in the evaluation and reward system, grant programs (for financial or other resources), and flexible (leave) policies.

Academic program strategies for internationalization often involve direct actions on the curriculum, and include infusion of international context and content across the curriculum, courses and concentrations with an international focus, student mobility, virtual mobility, and internationalization of the campus environment.

CHAPTER III

METHODOLOGY

The purpose of this study was to analyze perspectives of faculty in colleges of agriculture at selected land grant institutions regarding different academic and institutional strategies for the internationalization of the undergraduate agricultural curriculum. The case was analyzed with faculty in The College of Agricultural and Environmental Sciences of the University of Georgia [CAES-UGA], and The College of Agriculture and Life Sciences of Texas A&M University [COALS-TAMU]. The three objectives of the study were to 1) assess perspectives of faculty toward the internationalization of the undergraduate agricultural curriculum, 2) analyze perspectives of faculty toward different academic program strategies for the internationalization of the undergraduate agricultural curriculum, and 3) analyze perspectives of faculty toward institutional strategies to enhance participation of faculty in the internationalization of the undergraduate agricultural curriculum.

An on-line questionnaire was used to gather basic data. The research conducted was non-experimental and used descriptive, causal-comparative (*ex post facto*), and multivariate correlational research methods in order to describe quantitatively the perspectives of faculty toward different academic and institutional strategies for the internationalization of the undergraduate agricultural curriculum, and to explore relationships between factors (Gall, Borg, & Gall, 1996).

After gathering basic data from the questionnaires, the researcher also used qualitative research methods to analyze the responses to the open-ended questions of the instrument. In addition, the researcher also conducted a series of semi-structured interviews designed to complement the data from the questionnaires by providing additional examples and insights. The interviews were analyzed following procedures outlined by Lincoln and Guba (1985).

All research was reviewed and approved by the Institutional Review Boards (IRB) for research involving human subjects at both the University of Georgia and Texas A&M University.

1. QUANTITATIVE RESEARCH

Most of this study was based on quantitative research methods to prepare and administer the questionnaires, and analyze the data obtained from them, following the procedures described in this section.

1.1. Target population, sampling frames, and samples

The target populations were CAES and COALS faculty with undergraduate teaching responsibilities. The sampling frame was compiled by the researcher by listing all faculty in CAES and COALS departments that appeared in university and departmental web-sites or were listed in the university's course catalog/schedule as having taught undergraduate courses in the last five years, as well as the administrators directly responsible for these teaching faculty (department heads and associate deans for academic affairs). In order to reduce coverage error (i.e., the possibility that sampling frame does not contain all the subjects of the population), the researcher used various sources of information (web pages, departmental paper documents, university's course catalogs), prepared and compared the lists twice, and checked with specific individuals when in doubt.

The sample consisted of all faculty in the sampling frame (census), which corresponded to 169 CAES faculty members, and 270 COALS faculty. The decision to do a census was based on the need to have a sufficiently large sample, and to reduce sampling error.

1.2. Instrumentation

The researcher used a questionnaire with two versions, one distributed to CAES faculty and the other to COALS faculty. The two versions differed only nominally (e.g.,

the text would read University of Georgia or Texas A&M University, and College of Agricultural and Environmental Sciences or College of Agriculture and Life Sciences, where appropriate) and each had a different institutional programming code, “CAES” and “COALS,” respectively. The questionnaire (COALS version) is shown in Appendix A.

When preparing the instrument, the researcher did not find any instrument already developed that was well-suited to the needs of this study, in-so-far as could be determined, although some existing questionnaires (Bell, 1999; Dale, 1997; Elbashir, 1991; Jones, 1985; King, 1991; Sammons, 1995) contained items useful as a basis for the construction of a new questionnaire. After a review of literature and theoretical base related to curriculum change and internationalization, the researcher developed a new instrument, designed to gather data to accomplish the objectives and respond to the research questions of the study.

The first draft of the instrument underwent a series of revisions and suggestions by two panels of experts (the researcher’s Ph.D. graduate advisory committee at Texas A&M University, and a group of colleagues at the University of Georgia) and a small pilot study group (colleagues from the University of Georgia). The panels of experts, served to establish content validity of the instrument.

The questionnaires had three parts. Part I was designed to establish personal and professional characteristics of the respondents (demographics), including gender, years worked at UGA-CAES or TAMU-COALS, years worked in higher education, track and tenure situation, professorial rank, home department, percentage of total time teaching (graduate and undergraduate), and administrative vs. non administrative responsibilities.

Part II employed a quantitative five-point Likert-type response scale to assess the respondent’s

1. Self-perceived knowledge of and participation in international and internationalization activities;
2. Priorities for the agricultural curriculum, and perceived relevance, status, and need for further internationalization of the undergraduate agricultural curriculum;

3. Perspectives on different academic program strategies for the internationalization of the undergraduate agricultural curriculum, and
4. Perspectives on different institutional strategies to support faculty in their curriculum internationalization efforts.

The five-point Likert-type response scales included expressions such as “Very low, low, average, high, and very high,” “no, not much, neutral, somewhat, and yes,” “least useful, low use, average, high use, and most useful,” “not at all, a little, some, much, and a great deal.”

Part III consisted of open-ended questions designed to provide an opportunity for the respondents to personalize, add to, or clarify answers given in Part II, and to allow for more active participation of faculty in the study.

Table 1 summarizes the variables taken out of Parts I and II of the questionnaire, specifying name, significance, type of scoring, and the Cronbach Alpha value for the reliability analysis if constructed with more than one item from the questionnaire. The Cronbach Alpha is a measure used to determine internal consistency of the measurement scales, based on the average inter-item correlation.

The questionnaires were prepared to be posted on the web and available to be answered on-line. After respondents answered and “clicked” to send their questionnaire, an automatic and dated e-mail with the answers was sent to the researcher. The e-mail had one of two different headings: “Respostes CAES” or “Respostes COALS,” depending on the institutional code of the instrument, and no other information or identifier about the sender was included.

Table 1

Name, Explanation, Type of Scoring, and Cronbach Alpha for the Reliability Analysis of the Variables Used in the Study of the Internationalization of the Undergraduate Curriculum in Two Colleges of Agriculture, 2003

Variable	Explanation	Score	Items	Alpha
Response				
R1 Response	Response order within institution	Res.[a]		
R2 Days	Days to respond from first contact	Res.[a]		
D variables - Demographic data				
D1 Gender	Gender	Male Female		
D2 Years UGA/TAMU	Years worked at UGA-CAES or TAMU-COALS	Free Number		
D2G YearsUGA/TAMU	Grouping of years worked at UGA-CAES or TAMU-COALS	3 Groups		
D3 Years in HE	Years worked in higher education	Free Number		
D3G Years in HE	Grouping of years worked in higher education	3 Groups		
D4 Tenure	Track and tenure situation	3 Groups		
D5 Rank	Professorial rank	4 Groups		
D6 Department	Home department	Free Text		
D6G Dept type	Department type: Life science *vs.* social science	Life Social		
D7 % time teaching	Percentage of total time teaching (graduate and undergraduate)	Free Number		
D7G % time teaching	Grouping of percentage of total time teaching	4 Groups		
D8 Responsibilities	Administrative *vs.* non administrative responsibilities	No Yes		
D9 Institution	Institution (UGA *vs.* TAMU)	Res.[a]		

Table 1 *Continued*

Variable	Explanation	Score	Items	Alpha
K Variables - Knowledge of and participation in international and internationalization activities				
K1 Int (gen) know	International (general) knowledge/expertise	1 to 5 Likert[b]	2	.8219
K2 Int (gen) part	Participation in international activities (general)	1 to 5 Likert		
K3 Curr int know	Ability to internationalize and change the curriculum	1 to 5 Likert		
K4 Curr int part	Participation in curriculum internationalization activities	1 to 5 Likert		
K5 Int know/part	Knowledge of and participation in international and internationalization	1 to 5 Likert[b]	5	.8454
S Variables - Faculty perspectives about the interest in emphasizing a set of skills, competencies, and experiences in the undergraduate agricultural curriculum				
S1 Interpersonal	Interpersonal skills (e.g., leadership, management, teamwork)	1 to 5 Likert		
S2 Analytical	Problem solving, critical thinking, and analytical skills	1 to 5 Likert		
S3 Communication	Communication skills (e.g., listening, verbalizing, presentation, professional	1 to 5 Likert		
S4 Technical	Technical competency (in the “major” field of study)	1 to 5 Likert		
S5 International	International awareness and/or experience	1 to 5 Likert		
S6 Computer	Computer skills (e.g., basic office packages & programming, internet & database use)	1 to 5 Likert		
S7 Experience	Prior work and/or internship experience	1 to 5 Likert		
S8 Employers	Employers’ preferences: Analytical, interpersonal, and communication skills	1 to 5 Likert[b]	3	.8072

Table 1 *Continued*

Variable	Explanation	Score	Items	Alpha
T Variables - Relevance and status of internationalization and need for further internationalization				
T1 Relevance	Relevance of curriculum internationalization	1 to 5 Likert[b]	5	.8046
T2 Status	Status of internationalization at respondent's college (CAES or COALS)	1 to 5 Likert[b]	2	.7917
T3 Need	Need for further internationalization of the undergraduate agricultural curriculum	1 to 5 Likert		
A Variables - Academic program strategies for the internationalization of the curriculum				
A1 Infusion	Infusion: Integrating int. curriculum… into existing on-campus courses	1 to 5 Likert		
A2 On-campus	On-campus, international subject matter courses	1 to 5 Likert		
A3 Virtual	Technology and virtual mobility: Use of "distant" students, faculty, and resources	1 to 5 Likert		
A4 Concentrations	Concentrations: "International" subject matter certificates, minors, and majors	1 to 5 Likert		
A5 Short SA	Short-term (2-5 weeks) study abroad: A cohort of students with faculty from home	1 to 5 Likert		
A6 Cohort	Cohort semester abroad, at a foreign univ., but with faculty and students from home	1 to 5 Likert		
A7 Exchange	Semester exchange and internships: Individualized, student on its own	1 to 5 Likert		
A8 Environment	Internationalize campus environment: More international students, faculty, activities…	1 to 5 Likert		
A9 Mobility	Mobility programs: Short study abroad, semester cohort, exchanges and internships	1 to 5 Likert[b]	3	.7628
A10 Academic	Academic program strategies	1 to 5 Likert[b]	8	.6582

Table 1 *Continued*

Variable	Explanation	Score	Items	Alpha
I Variables - Institutional strategies to support faculty in their efforts to internationalize the curriculum				
I1 Time	Release time from teaching (or other duties) to internationalize curriculum	1 to 5 Likert		
I2 Collaboration	Collaboration with other faculty members	1 to 5 Likert		
I3 Recognition	Including part. in int. efforts in evaluation process (salary increase, tenure, promotion)	1 to 5 Likert		
I4 Intellectual	Strategies to support faculty from an intellectual aid perspective	1 to 5 Likert[b]	3	.7708
I41 Specialist	Creation of an “internationalization support specialist” position in the college of	1 to 5 Likert		
I42 Materials	Development/availability of int. instructional materials to choose from, adapt, and use	1 to 5 Likert		
I43 Seminars	Seminars, workshops to assist faculty in curr. development and internationalization	1 to 5 Likert		
I5 Funds	Funds (sabbaticals, on-campus, off-campus, students)	1 to 5 Likert[b]	4	.8386
I51 F. sabbaticals	Funds for participation in int. programs, sabbaticals, and other prof. dev. act.	1 to 5 Likert		
I52 F. on-campus	Funds to support curriculum dev. and int. for on-campus courses (infuse, int subject	1 to 5 Likert		
I53 F. off-campus	Funds to support curriculum dev. and int. for off-campus courses (study abroad,	1 to 5 Likert		
I54 F. students	Funds to support student participation in internationalized programs	1 to 5 Likert		
I55 Administrative	Support from dept., college, and university administrations for the agricultural	1 to 5 Likert		
I6 Institutional	Institutional strategies	1 to 5 Likert[b]	11	.8833

[a]Researcher generated. [b]Constructed from items scored with a 1 to 5 Likert-type scale.

The decision to use an on-line questionnaire was based on information from the literature that supports replacing traditional methods of collecting information by on-line data collection (Bertot & McClure, 1996; Dillman, 2000; Fulop, Loop-Bartick, & Rossett, 1997; Watt, 1999). The researcher prepared both the questionnaire and the programming for the on-line interactivity, and set it up so the page was a secure site and so that there would be no tracking or any type of electronic identification about respondents. In addition, the respondents did not need any password or code to access the page or answer the questionnaire.

The “no password” system has advantages because it is more transparent than systems that require a password from each respondent, and better protects the anonymity of the respondent, especially from the respondent’s perspective. A disadvantage for this study, however, was that the researcher was not able to track nonrespondents (that is, differentiate respondents from nonrespondents), which meant that she had to send follow-up letters to all individuals in the e-mail list of the target population. This detail restricted the researcher from adhering strictly to protocols and procedures proposed by Dillman (2000) to maximize response rate, limiting the number of follow-up letters that could be sent so as not to waste the time (and patience) of people who had already responded. Partly for this reason, the human subjects office at the University of Georgia restricted the number of e-mail contacts to three. This was one of the limitations of the study, and may have contributed to the low response rate achieved (44% overall). When designing the research, the researcher did not expect such a low response rate, and, when weighing advantages and disadvantages of the different methods, she selected the one that appeared to be “safer” from the respondents’ perspective.

1.3. Collection of data

The potential respondents were first contacted by the Associate Dean of Academic Affairs of their respective colleges, through a short e-mail note (Appendix B), asking them to respond to the questionnaire. In the note, the faculty had a link to the cover/consent letter (Appendix C), posted on the web, followed by the questionnaire. The CAES Associate Dean sent his e-mail on March 19, 2003 (day 1 CAES), and the

COALS Associate Dean sent her e-mail on April 25, 2003 (day 1 COALS). The two processes were not started at the same time both for practical reasons and because the researcher wanted to proof the system first at one college and reserve the opportunity to make corrections if necessary (which proved not to be the case).

The second time that faculty were contacted was six days later, on 25 March (day 7 CAES), and 1 May (day 7 COALS). At this time, they were contacted directly by the researcher, with an e-mail containing the cover letter itself, with the link to the on-line questionnaire.

Prospective respondents were contacted a third time on 16 April (day 29 CAES) and 26 May (day 32 COALS) through e-mail, by the researcher, with a follow-up (reminder) letter similar to the first one (Appendix D).

On 21 May (day 64 CAES), and for the next five consecutive working days, the researcher undertook a systematic approach to visit as many as possible of faculty in the sampling frame. For each of six buildings that housed appropriate CAES departments and faculty, she went office by office in numerical order. In view of the number of people involved, visits were not prearranged, so in many cases faculty were not in their offices. During her visits, she asked those faculty who were present if they could answer the questionnaire, if they had not done so yet. Many of the faculty visited said they had already answered the questionnaire. Of the faculty who said they had not yet answered the questionnaire, most agreed to do it after the researcher explained the importance of the study for her Ph.D. work (this argument influenced considerably more nonrespondents than the case of advancing the internationalization process in the college). The researcher gave to these prospective respondents a hard copy of the questionnaire with a self-addressed envelope, so they could choose to respond either on-line or on paper. Most of the new responses arrived in the mail, rather than via e-mail, and the researcher then typed the responses into the on-line system.

The respondents who answered the questionnaire after this personal visit are identified as “double-dipped respondents” in the remainder of this dissertation. Some authors identify them as “double-dipped nonrespondents,” or simply nonrespondents (Lindner, Murphy, & Briers, 2001; Miller & Smith, 1983), which did not seem adequate to the researcher given the theoretical and statistical connotations that this designation

has. Another possible designation could be “reluctant respondents.” Because the researcher lives in Georgia and works at UGA, it was possible to carry out this double-dipping effort. However, because of not being physically at Texas A&M University, the researcher was not able to carry out this follow-up procedure at COALS.

One faculty member in CAES and four in COALS informed the researcher of their preference not to participate in the study, and they were withdrawn from the e-mailing lists. At CAES, there was no evidence of problems with the survey process. At COALS, however, problems were encountered with the e-mail system. For example, there were many returned e-mails and error messages for e-mail addresses that appeared to be correct and up-to-date. A number of people reported that they had not received any message prior to the reminder notice, while others indicated that they had received unreadable, empty, or unopenable e-mails from the sender, or that the link to the questionnaire was not in the message. In the cases in which the researcher was informed of problems, a solution was quickly attempted. However, to date, the researcher has not been able to quantify the exact scope of the problem. After encountering these problems, the researcher learned of other occasions in which TAMU’s (COALS) e-mail system had been shown to be faulty in transmission of similar documents (mainly involving users of the software ‘GroupWise’).

The responses received totaled 113 for CAES (67% response rate), and 80 for COALS (30% response rate), for a total of 193 responses, and an overall response rate of 44%. The differences in response rate between the two institutions were attributable to many factors, including 1) problems encountered with the e-mail system at COALS, which were not present at CAES, 2) “double-dipping” of respondents with personal visits at CAES, and 3) many faculty at CAES knew the researcher and may have been more willing to “help her out” than faculty at COALS who had never heard of her.

Although the researcher made all possible effort to reduce nonresponse, the response rate ended up being very low. To handle the problem, the researcher assessed statistically the extent of nonresponse error, as described in Chapter IV, section 8: Handling nonresponse. Also, because the data were “provided by a volunteer sample, the results are generalizable only to subsequent similar volunteer samples" (Edwards, 1999).

After all responses were received, the researcher transferred the quantitative data from the e-mails to a Microsoft Excel 97 spreadsheet file and then imported it into an SPSS 11.5.1 data file.

Table 2 summarizes the number of people in the sampling frames, number of responses per contact, total valid responses, and response rate obtained at each institution (CAES and COALS).

Table 2

Sampling Frames, Responses per contact, Total Valid Responses, and Response Rate by Institution, Pertaining to the Study of the Internationalization of the Undergraduate Curriculum in Two Colleges of Agriculture, 2003

Group	CAES	COALS	Total
Sampling frame	169	270	439
Invalid e-mail (not received, returned, invalid, irreadable)	--	>30	>30
Indicated preference not to participate	1	4	5
First Contact (Associate Dean note)	23	19	42
Second Contact (Researcher's letter)	49	44	93
Third Contact (Researcher's reminder)	9	17	26
Fourth Contact (Personal visit)	32	--	32
Valid responses	113	80	193
Response Rate	67%	30%	44%

1.4. Analysis of data

The quantitative data obtained from the questionnaire were analyzed using the *Statistical Package for the Social Sciences* (SPSS), version 11.5.1. The procedure *Descriptive statistics* was used to calculate frequencies, means, maximum and minimum values, and standard deviations of individual variables, and to measure symmetry (Cramer's V) in cross-tabulations. The procedure *Scale* (*Reliability analysis)* was used to determine the internal consistency of the measurement scales with the Cronbach Alpha. Table 1 shows the Cronbach Alpha of all the constructs of the study. The procedure *Compare means* was used to perform *t*-tests of independent samples and one-way analysis of variance. The procedure *General linear models* (GLM) was used mostly with the repeated measures option, for comparison and separation of means, estimate confidence intervals, regression analysis and parameter estimates, and calculate Wilk's lambda in multivariate tests. The procedure *Correlate (bivariate)* was used for correlation analysis, and the procedure *Regression (linear)* was used to estimate bivariate linear regression coefficients. The probability level of statistical significance was set with an *a priori* alpha of $p < .05$.

1.5. Measuring validity and reliability of the questionnaires

When defending validity (Henerson, Morris, & Fitz-Gibbon, 1988), the researcher is trying to show that the instruments used in the study are appropriate instruments to answer the research questions. Validity is assessed through construct validity (precise construct definition), and content validity (refers to the representativeness of the questions included in the questionnaire, as samples of all the possible questions).

For this study, to achieve construct validity in preparing the instrument, the researcher obtained reviews from two panels of experts (as described above). The researcher eliminated those questions that seemed inadequate, unnecessary, or ambiguous. Respondents were not rushed and there was no pressure to respond in a particular way. The researcher made every effort to avoid any questions with a more 'socially acceptable' answer.

For content validity, the researcher, with the help of the panel of experts, checked that there had not been important omissions, and that emphasis on the various sub-areas was balanced.

Reliability in an instrument measures the consistency in the instrument's results, or the expected similarity of the results when readministered. Internal consistency, an "approach to estimating test score reliability in which the individual items of the test are examined" (Gall, Borg, and Gall, 1996, p. 256) is often used to measure reliability. To defend internal consistency, the researcher calculated Cronbach's coefficient alpha for the constructs in Part II, shown in Table 1.

2. QUALITATIVE RESEARCH

To enhance the study, the researcher embraced a mixed-method approach, and included qualitative research methods with the open-ended questions of the questionnaire. In addition, the researcher also conducted eight semi-structured interviews designed to complement the data from the questionnaires by providing additional examples and insights.

The researcher is aware that the layout and the implementation of the qualitative part of the study (e.g., small number of interviews conducted) would not meet the accepted procedures for a study that is entirely qualitative in design. However, by using a mixed-method approach and by adding some qualitative aspects, the researcher was able to add a richness to her study that a purely quantitative approach would have lacked.

2.1. Sample selection

For the interviews, the researcher employed a purposeful sampling strategy, intentionally selecting eight information-rich people from whom the researcher could "learn a great deal about issues of central importance to the purpose" of the research (Patton, 1987, p. 52). Patton (1990) outlined many different variations of purposeful sampling strategies and indicated that combinations of the various strategies may be appropriate. The eight interviewees (three CAES, one COALS, and one UGA (non CAES) (teaching) faculty members, two CAES administrators, and one UGA central

administrator) were selected as follows: Six were selected *a priori* by the researcher for being information-rich people, each for a different reason:

1. S/he was very active in the agricultural curriculum internationalization activities;
2. S/he is known in CAES as an excellent and innovative educator who uses student-centered teaching techniques;
3. S/he had participated, in collaboration with others, in many internationalization efforts, but never had led one by her/himself;
4. S/he had an influential position in the academic programs of CAES;
5. S/he an influential position in the academic programs and the internationalization efforts at the university level;
6. S/he was active in curriculum change and diversity issues;
7. The two remaining interviewees contacted the researcher personally and indicated that they would be interested in discussing further their perspectives about the internationalization of the agricultural curriculum and offered to take part in the interview process.

2.2. The open-ended questions of the questionnaire and the interviews

There were four open-ended questions in the questionnaire:

1. What, in your opinion, is the single most important reason why internationalization of the curriculum is or is not important?
2. What, in your opinion, is one effective way to internationalize the curriculum?
3. What would be the most attractive incentive for you to participate in the internationalization of the curriculum?, and
4. What, in your opinion, is the main reason why internationalization is or is not progressing?

The type of interview conducted combined an informal conversational interview with a semi-structured interview guide approach (Appendix E) with each lasting

approximately one hour. To avoid repetition, lack of focus, and information overload, Merriam (1998) recommended that researchers keep the analysis of data dynamic and parallel with the collection of data, and use the results of one effort to improve the quality and focus of the next one. The researcher followed these suggestions and focused her interviews on questions raised during the analysis of the questionnaires. This is why all the interviews were performed after a preliminary analysis of the quantitative data had been conducted so that the researcher could concentrate, during the interviews, on topics for which she wanted further clarification. The dates for the one-hour interviews were June 4, 18, and 23, July 7 and 29, August 19 and 26, and October 28, 2003. After these first interviews, some of the interviewees were addressed more than once, with follow-up questions (less than half an hour) and member checks, providing the opportunity for respondents to assess the adequacy of the information captured by the researcher. Each interviewee was informed about the characteristics of the research and about his/her rights, as indicated in the informed consent letter (Appendix F), which they were asked to sign, and then were given a copy for their records.

2.3. Collection of data

Once the researcher received as an e-mail text the answers to the open-ended questions along with the quantitative data from the questionnaire, she transferred them to a text file.

During the interviews, the researcher took notes, noting both verbal communication and non-verbal cues. In most cases, however, the researcher found difficulty in taking very accurate notes and at the same time being an active participant in the discussion. She then, took just bulleted notes and filled in the blanks after the interview was finished. Also, the researcher asked some of the interviewees if they agreed that the interview could be recorded, and, if they agreed, the interview was taped. After the first group of interviews, however, the researcher decided not to tape the remaining interviews for she felt the recording was preventing the conversations from being totally free and open. In addition, the researcher kept a reflexive journal.

2.4. Analysis of data

Patton (1990) offered an intimidating description of what is involved in analyzing qualitative data. The goals of the process are “to make sense of massive amounts of data, reduce the volume of information, identify significant patterns, and construct a framework for communicating the essence of what the data reveal” (pp. 371-372), and noted that while there are guidelines for the process, these are not absolute, and the analysis ultimately depends on the researcher.

For this study, the researcher analyzed the data from the open-ended questions and the interviews following guidelines proposed by Lincoln and Guba (1985) for content analysis of qualitatively obtained data, including unitizing, categorizing, filling in patterns, and conducting member checks. The researcher used the constant comparative method of data analysis, in which, first, the smallest possible units of data were defined (unitizing), and then continually examined and contrasted with one another to find recurring ideas, topics, and categories (categorizing). This process required an understanding of the data, and constant manipulation. The researcher used traditional methods of physical cutting and pasting with scissors and index cards.

2.5. Trustworthiness

Trustworthiness means credibility, transferability, dependability, and confirmability, as termed in naturalistic inquiry, evolved from internal validity, external validity, reliability, and objectivity in the conventional paradigm (Lincoln & Guba, 1985). To establish trustworthiness, the researcher engaged in different techniques following suggestions by Lincoln and Guba (1985):

1. Information collection techniques that increase the probability of high credibility: Prolonged engagement, persistent observation, and triangulation. Although the researcher only conducted eight interviews for this study, she has participated in many CAES activities related to the study that provide for prolonged engagement and persistent observation. For example, for the five last years, the researcher has taught two CAES annual courses in international agriculture and has been a guest lecturer in many CAES classes discussing international agriculture issues. Also, the

researcher has been for the last five years part of the advisory committee of the Office of International Agriculture and the Certificate on International Agriculture, and has been a member of the CAES undergraduate curriculum committee for the last three years. In 2003, the researcher was a member of the strategic planning modeling committee dealing with the “education” model, and was chair of one of the subcommitttees of this group. These activities, however, in addition to providing for prolonged engagement and persistent observation, also implies a researcher’s bias The researcher is aware of her bias, and used the reflexive journal (see later) to reflect on it. For triangulation, the researcher used different sources and methods for her study (document analysis, quantitative methods, and qualitative methods, including questionnaire open-ended questions and interviews);

2. Peer debriefing. This is a process in which the researcher exposes him/herself to a “disinterested peer . . . for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer’s minds.” (Lincoln & Guba, 1985, p. 308). During the whole research process, the researcher exposed herself and her work to two peer debriefers;

3. Member checks (in process and terminal). “The member check, whereby data, analytic categories, interpretations, and conclusions are tested with members of those stake-holding groups from whom the data were originally collected, is the most crucial technique for establishing credibility” (Lincoln & Guba, 1985, p. 314). The researcher did some member checks with some of the respondents;

4. Use of a reflexive journal. The reflexive journal is "a kind of diary in which the investigator on a daily basis, or as needed, records a variety of information about self . . . and method" (Lincoln & Guba, 1985, p. 327). The reflexive journal is very useful to the establishment of credibility, transferability, dependability, and confirmability. It is especially useful in order to determine the "extent to which the inquirer's biases influenced the outcomes" (Lincoln & Guba, 1985, p. 327). Thus, the researcher included in the reflexive journal reflections on his/her own biases and orientation toward different issues related to the research topic, and how they were affecting her research inquiry.

CHAPTER IV

PRESENTATION AND ANALYSIS OF FINDINGS

The primary purpose of this research was to analyze perspectives of faculty in selected land grant colleges of agriculture toward different academic and institutional strategies for the internationalization of the undergraduate agricultural curriculum. The case was analyzed with faculty in The College of Agricultural and Environmental Sciences of the University of Georgia [CAES-UGA], and The College of Agriculture and Life Sciences of Texas A&M University [COALS-TAMU]. Three objectives were identified to achieve this purpose. The first objective was to assess perspectives of faculty in selected colleges of agriculture toward the internationalization of the undergraduate agricultural curriculum. The second objective was to analyze perspectives of faculty in selected colleges of agriculture toward different academic program strategies for the internationalization of the undergraduate agricultural curriculum. A third objective was to analyze perspectives of faculty toward institutional strategies to enhance participation of faculty in the internationalization of the undergraduate agricultural curriculum. The following research questions were developed to accomplish the purpose and objectives:

1. What demographic characteristics of the respondents affect their perspectives on, and participation in, the internationalization of the undergraduate agricultural curriculum?
2. What are the faculty members' self-perceived level of international knowledge/expertise, participation in international activities, ability to internationalize the curriculum, and participation in curriculum internationalization efforts? What are the relationships between these variables?
3. What do the faculty of selected colleges of agriculture perceive to be priorities for the undergraduate agricultural curriculum? What is the level of priority given to internationalization? What do the faculty perceive to be the present status of the

internationalization of the undergraduate agricultural curriculum at the two institutions surveyed?

4. How do the faculty in selected colleges of agriculture evaluate and prioritize different academic program strategies used for the internationalization of the curriculum?
5. How do the faculty in selected colleges of agriculture evaluate and prioritize different institutional strategies to support their efforts to internationalize the curriculum?
6. Are there significant differences between the results obtained at the two institutions surveyed?
7. How do demographics, self-perceived level of international and internationalization expertise and participation, priorities given to curriculum, and perceptions toward different academic program and institutional strategies for internationalization relate to one another?

Altogether 193 respondents participated in the study. 113 were from the College of Agricultural and Environmental Sciences (CAES) of the University of Georgia, and 80 were from the College of Agriculture and Life Sciences of Texas A&M University, which corresponded to a 67% response rate in CAES, 30% in COALS, and an overall response rate of 44%. This low response rate was identified as one of the limitations of this study, threatening external validity and generalizability of the results.

This chapter presents and analyzes the findings of the study. The first seven sections are organized to respond to the seven research questions outlined above. An eighth section presents different procedures to handle nonresponse in social science research, and explores the results of applying some of the procedures to the data of this study.

1. DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

The first research question states: What are some demographic characteristics of the respondents that could affect their perspectives on, and participation in, the internationalization of the undergraduate agricultural curriculum?

To address this research question, respondents were asked to answer eight questions that described selected demographic characteristics: Gender, number of years they had been working at UGA-CAES or TAMU-COALS, number of years they had been working in higher education, tenure situation, professorial rank, home department, percentage of total time spent teaching (graduate and undergraduate) in their own estimation (rather than based on their job description), and whether or not they had administrative responsibilities. In addition, the researcher knew to which institution they belonged (UGA or TAMU) due to different coding in the questionnaires.

This section presents the results of the demographic characteristics by institution, and then presents the departmental affiliation of respondents. Associations between some of the demographic characteristics are explored and discussed. Later in the chapter (Section 7.1 Associations with demographic variables), analyses are made as to whether any of the demographic characteristics are statistically related to faculty's responses to questions dealing with self-perceived level of knowledge of and participation in international and internationalization activities, priorities for the undergraduate curriculum, relevance for status, need for further internationalization, faculty preferences for different academic program strategies for the internationalization of the curriculum, and faculty preferences for different institutional strategies to support faculty in their internationalization efforts.

Table 3 summarizes the eight demographic characteristics, indicating the "code" assigned to each variable, the response options given to the respondents, and the additional groupings (if any) made by the researcher to facilitate the presentation, analysis, and discussion of findings.

1.1. Demographic characteristics by institution

A summary of the data from responses to most demographic questions is provided in Table 4 (all except home department, reviewed later in section 1.2). The results are shown clustered by institution so data are already arranged in a way that will help present better the discussion of research question number six, about possible significant differences between the results obtained at the two institutions surveyed.

Table 3

List of Questions about Demographic Characteristics, Coding of Variables, Response Options for Respondents, and Additional Groupings for Responses, Pertaining to the Study of the Internationalization of the Undergraduate Curriculum in Two Colleges of Agriculture, 2003

Variable	Options for respondent	Additional groupings by researcher
D1 Gender	Male, Female	
D2 Years UGA/TAMU	Free text	D2G Years UGA/TAMU $y \leq 4$ $4 < y \leq 14$ $y > 14$
D3 Years in HE	Free text	D3G Years in HE $y \leq 4$ $4 < y \leq 14$ $y > 14$
D4 Tenure	Non-tenure track Non-tenured (tenure track) Tenured (tenure track)	
D5 Rank	Free text	Temporary Assistant professor Associate professor Professor
D6 Department	Free text	D6G Dept type Life sciences departments Social science departments
D7 % time teaching Undergraduate Graduate	Free	D7G % time teaching: % for graduate and undergrad. added. If < 100, then, grouped as: $t < 30$ $30 \leq t \leq 45$ $45 < t \leq 60$ $t > 60$
Responsibilities	No Yes	

Table 4 also presents the value and significance value for Cramer's *V*, a symmetry measure that tests associations between entries. In our case, if the value of Cramer's *V* is not significant, then the categories of the variable in question (e.g., temporary, assistant professor, associate professor, or professor) are not disproportionately represented in either of the two institutions. The results show that there are only significant differences between institutions for gender (D1 Gender) , with a lower percentage of females in UGA than in TAMU (12.5% *vs.* 24.1%), and for the percentage of time spent teaching (D7G % time teaching), with less at UGA than TAMU, as shown graphically in Figure 10.

Table 4

Summary of Demographic Characteristics of Respondents by Institution, with Symmetry Measure (Cramer's V) of the Association, Pertaining to the Study of the Internationalization of the Undergraduate Curriculum in Two Colleges of Agriculture, 2003

	Institution							
	CAES		COALS		Total		Cramer's *V*	
Characteristic	*n*	%[h]	*n*	%[h]	*n*	%	Value	Sig.
Total Respondents	113		80		193	100		
D1 Gender[a]								
Male	98	87.5	60	75.9	158	82.7		
Female	14	12.5	19	24.1	33	17.3	.150	.038
D2G Years UGA/TAMU[b]								
$y \leq 4$	24	21.4	18	22.8	42	22.0		
$4 < y \leq 14$	34	30.4	24	30.4	58	30.4		
$y > 14$	54	48.2	27	46.8	91	47.6	.017	.972

Table 4 *Continued*

	Institution							
	CAES		COALS		Total		Cramer's *V*	
Characteristic	*n*	%[h]	*n*	%[h]	*n*	%	Value	Sig.
D3G Years in HE[c]								
$y \leq 4$	11	9.8	9	11.4	20	10.5		
$4 < y \leq 14$	33	29.5	27	34.2	60	31.4		
$y > 14$	68	60.7	43	54.4	111	58.1	.063	.687
D4 Tenure[d]								
Non-tenure track	6	5.3	10	12.7	16	8.3		
Non-tenured	17	15.0	16	20.3	33	17.2		
Tenured	90	79.6	53	67.1	143	74.5	.157	.094
D5 Rank[e]								
Temporary	5	4.5	4	5.1	9	4.7		
Assistant professor	17	15.2	16	20.5	33	17.4		
Associate professor	32	28.6	19	24.4	51	26.8		
Professor	58	51.8	39	50.0	97	51.1	.077	.770
D7G % time teaching[f]								
$t < 30$	33	33.3	5	8.6	38	24.2		
$30 \leq t \leq 45$	33	33.3	9	15.5	42	26.8		
$45 < t \leq 60$	20	20.2	20	34.5	40	25.5		
$t > 60$	13	13.1	24	41.4	37	23.6	.429	.000
D8 Responsibilities[g]								
Not administrative	89	78.8	62	79.5	151	79.1		
Administrative	24	21.2	16	20.5	40	20.9	.009	.904

[a]Two respondents did not answer this question. [b]Two respondents did not answer this question. [c]Two respondents did not answer this question. [d]One respondent did not answer this question. [e]Three respondents did not answer this question. [f]Thirty six respondents did not answer this question (or did not provide a valid answer). [g]Two respondents did not answer this question. [h]Percentage within institution.

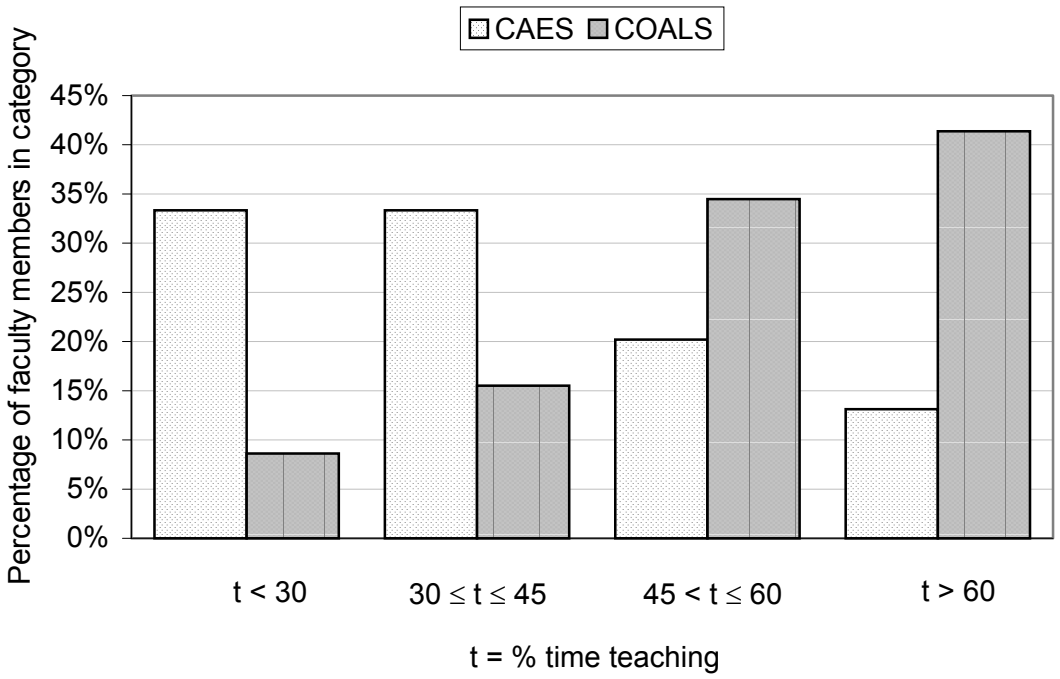


Figure 10. Percentage of faculty members spending different percentages of their time teaching, by college, as reported by them (CAES *N* = 99, COALS *N* = 58), pertaining to the study of the internationalization of the undergraduate curriculum in two colleges of agriculture, 2003.

1.2. Departments and types of departments

In addition to the seven demographic characteristics already discussed, respondents were asked to identify their home department. Faculty from each of the eleven departments in CAES (UGA) responded, and faculty from each of the fourteen departments in COALS (TAMU) responded. Table 5 shows the number of respondents per department and institution.

Table 5

Number of Respondents per Department and Institution, Pertaining to the Study of the Internationalization of the Undergraduate Curriculum in Two Colleges of Agriculture, 2003

D6 Department[a, b]	Institution	
	CAES	COALS
AAE – Agricultural and Applied Economics (Agricultural Economics)	14	4
ADS – Animal and Dairy Science) (Animal Science)	10	8
ALE – Agricultural Leadership, Education, and Communication (Agricultural Education)	5	15
BAE – Biological and Agricultural Engineering	14	4
BIOC – (Biochemistry and Biophysics)	-	6
CSS – Crop and Soil Science (Soil and Crop Sciences)	19	7
EHS – Environmental Health Science	6	-
ENT – Entomology	5	6
FSC – (Forest Science)	-	1
FST – Food Science and Technology	5	-
HOR – Horticulture (Horticultural Sciences)	12	3
PPT – Plant Pathology (Plant Pathology and Microbiology)	7	1
PSC – Poultry Science	11	4
RANG – (Rangeland Ecology and Management)	-	7
REC – (Recreation, Park and Tourism Sciences)	-	4
WILD – (Wildlife and Fisheries Sciences)	-	7

[a]Eight respondents did not answer this question. [b]Name of the department at UGA-CAES first, in parenthesis name of TAMU-COALS department if different from UGA's.

From an analytical perspective, the researcher wanted to separate the departments into two broad categories, “social science,” and “life sciences” departments. In establishing these two categories, the researcher was aware that not all individuals of all departments would fit equally well into these broad categories. Five departments were categorized as social science: AAE (Agricultural and Applied Economics at CAES, and Agricultural Economics at COALS), ALE (Agricultural Leadership, Education, and Communication at CAES, and Agricultural Education at COALS), and REC (Recreation, Park and Tourism Sciences at COALS), while the remaining twenty-five departments were categorized as life sciences (see Table 5 for listing). Table 6 shows the number of faculty members in each category of department per institution, as well as the symmetry measure, Cramer’s *V*, to test for the association or lack of association between type of department and institution. As one can deduce from the significance of the Cramer’s *V* value, there is an association between the type of department and the institution, with faculty members in social science departments being overrepresented in COALS (29.9%) relative to CAES (17.6 %). This is partly due to the large faculty body (and high response rate) in the Texas A&M University Department of Agricultural Education.

Table 6

Crosstabulation of Department “Type” and Institution, with Symmetry Measure (Cramer’s V) of the Association, Pertaining to the Study of the Internationalization of the Undergraduate Curriculum in Two Colleges of Agriculture, 2003

	Institution				Total		Symm. measure Cramer’s *V*	
	UGA		TAMU					
D6G Dept. type[a]	*n*	%[b]	*n*	%[b]	*n*	%	Value	Sig.
“Life sciences”	89	82.4	54	70.1	143	77.3		
“Social science”	19	17.6	23	29.9	42	22.7	.144	.049

[a]Eight respondents did not answer the question concerning departmental affiliation (or did not provide a valid answer). [b]Percent within institution.

1.3. Associations between demographic characteristics

Table 7 shows the value and significance of the association (Cramer's *V*) resulting from the crosstabulations among the demographic variables.

It is not the intention of the researcher to discuss all associations found between demographic characteristics, but only those that are not necessarily intuitive and may help to understand some of the results obtained in other sections of the data analysis. These include, for example, crosstabulations of demographic variables with D1 Gender, D6 Dept type, D7G % time teaching, and D8 Responsibilities. Examples of associations that are intuitive and will not be discussed in detail include D2G Years at UGA/TAMU with D3G Years in HE; D4 Tenure with D5 Rank; and either D4 Tenure or D5 Rank with either D2G Years in UGA/TAMU or D3G Years in HE.

In the crosstabulation between all demographic variables with D6 Dept type or with D7 % time teaching, none of the Cramer's *V* has a significant value (Table 7). In the cross-tabulation of all demographic variables with D8 Responsibilities, the only significant Cramer's *V* was with D5 Rank (value .226, and significance .022), with faculty with administrative responsibilities holding the higher ranks. The data and Cramer's *V* for the crosstabulations that showed significant associations with D1 Gender are shown in Table 8 (associations that yielded a non-significant Cramer's *V* are not shown). From Table 8, one can see that female faculty members have been working at UGA/TAMU or in higher education comparatively less time than male faculty members, that there are proportionately more females than males in non-tenure track positions. Further, among faculty in tenure-track positions, the percentage of females without tenure is much higher than the percentage of males without tenure.

Table 7

Associations (Cramer's V Value and Significance) Between Demographic Variables, Pertaining to the Study of the Internationalization of the Undergraduate Curriculum in Two Colleges of Agriculture, 2003

Variable	Cramer's V	D2G	D3G	D4	D5	D6G	D7G	D8[a]
D1 Gender	Value	.243**	.346**	.193*	.299**	.117	.177	.131
	Sig.	.004	.000	.029	.001	.112	.184	.071
	N	189	189	190	188	184	155	189
D2G Years UGA/TAMU	Value	--	.700**	.469**	.646**	.021	.120	.118
	Sig.	--	.000	.000	.000	.959	.613	.267
	N	--	190	190	188	184	155	189
D3G Years in HE	Value	--	--	.454**	.623**	.019	.072	.158
	Sig.	--	--	.000	.000	.967	.951	.092
	N	--	--	191	189	185	156	190
D4 Tenure	Value	--	--	--	.831**	.123	.150	.132
	Sig.	--	--	--	.000	.247	.314	.190
	N	--	--	--	190	185	157	191
D5 Rank	Value	--	--	--	--	.146	.142	.226*
	Sig.	--	--	--	--	.272	.409	.022
	N	--	--	--	--	183	155	189
D6G Department type	Value	--	--	--	--	--	.202	.010
	Sig.	--	--	--	--	--	.101	.887
	N	--	--	--	--	--	152	184
D7G % time teaching	Value	--	--	--	--	--	--	.017
	Sig.	--	--	--	--	--	--	.998
	N	--	--	--	--	--	--	156

[a]D8 Responsibilities.

*Association is significant at the .05 level (2-tailed). **Association is significant at the .01 level (2-tailed).

Table 8

Crosstabulations of Gender with Other Demographic Characteristics Among Respondents Participating in the Study of the Internationalization of the Undergraduate Curriculum in Two Colleges of Agriculture, 2003, that Yielded a Significant Cramer's V When Testing for Associations Between Demographic Characteristics

	Gender				
	Female	Male	Total	Cramer's V	
Characteristic	*n*	*n*	*n*	Value	Sig.
D2G Years UGA/TAMU[a]					
$y \leq 4$	11	31	42		
$4 < y \leq 14$	15	42	57		
$y > 14$	7	83	90	.243	.004
D3G Years in HE[b]					
$y \leq 4$	6	14	20		
$4 < y \leq 14$	20	39	59		
$y > 14$	7	103	110	.346	.000
D4 Tenure[c]					
Non-tenure track	6	10	16		
Non-tenured	8	25	33		
Tenured	19	122	141	.193	.029
D5 Rank[d]					
Temporary	4	5	9		
Assistant professor	8	25	33		
Associate professor	14	35	49		
Professor	7	90	97	.299	.001

[a]Four respondents did not answer at least one of the two questions. [b]Four respondents did not answer at least one of the two questions. [c]Three respondents did not answer at least one of the two questions. [d]Five respondents did not answer at least one of the two questions.

2. KNOWLEDGE OF AND PARTICIPATION IN INTERNATIONAL AND INTERNATIONALIZATION ACTIVITIES

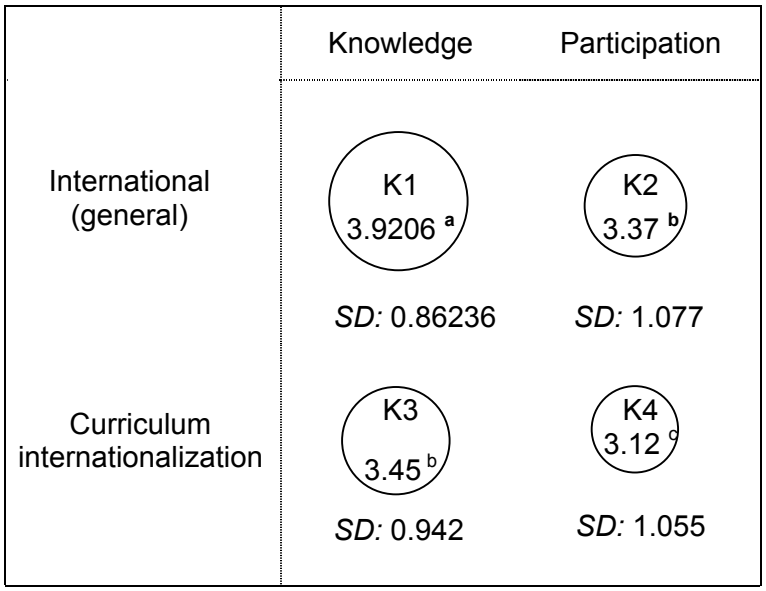
The second research question states: What is the self-perceived level of international knowledge/expertise, participation in international activities, ability to internationalize the curriculum, and participation in curriculum internationalization efforts? What are the relationships between these variables?

Several items throughout the questionnaire formed the four different constructs at study under this section: General knowledge and expertise in international issues (K1 Int (gen) know), participation in general international activities (K2 Int (gen) part), knowledge and ability to internationalize/change the curriculum (K3 Curr int know), and participation in activities to internationalize the curriculum (K4 Curr int part). Figure 11 represents graphically the relationships between these variables, and shows the means and separation of means as obtained from the data analysis.

Key results depicted in Figure 11 are that the self-perceived level of knowledge was significantly higher than the self-perceived level of participation (in both general international issues and internationalization of the curriculum), and that both the knowledge of and participation in general international activities were significantly higher than the knowledge of and participation in curriculum internationalization activities, respectively. In principle, from these “static” results, one could have envisioned that because the levels of knowledge appeared to be significantly higher than the levels of activity, this was one of the situations in which the level of international knowledge was not a limiting factor for participation in curriculum internationalization efforts, consistent with the views of some internationalization scholars (Carter, 1992; Nolan, as cited by French, 1992).

A more in-depth analysis of the data, however, showed a significant linear relationship among the variables. Specifically, greater knowledge (in both international issues and ability to internationalize the curriculum), was positively associated with both participation in international activities and internationalization of the curriculum. Further, ability and participation in internationalization activities grew with higher levels of knowledge of and participation in general international issues and activities. Table 9 shows the details of these linear relationships, with the estimated parameters

(unstandardized coefficients for the constant and slope) of the linear regressions, significance, 95% confidence intervals, and standardized coefficients of the relationships (Pearson's correlation).



Listwise *N* = 189

[a,b,c] Means that do not share the same letter in the superscripts differ significantly at $p < .01$, with Bonferroni's adjustment for multiple comparisons.

Figure 11. Graphical representation of faculty's knowledge of and participation in international and internationalization activities, pertaining to the study of the internationalization of the undergraduate curriculum in two colleges of agriculture, 2003.

Table 9

Parameter Estimates of Linear Regressions Between Variables Corresponding to Knowledge of and Participation in International and Internationalization Activities Among Respondents Participating in the Study of the Internationalization of the Undergraduate Curriculum in Two Colleges of Agriculture, 2003

			Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B	
Ind. Variable	Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.	Lower Bound	Upper Bound
K1	K2[a]	Constant	.180	.276		.515	-.364	.724
		Slope	.813**	.069	.651**	.000	.677	.949
K1	K3[b]	Constant	1.112**	.268		.000	.584	1.640
		Slope	.596**	.067	.546**	.000	.464	.728
K1	K4[c]	Constant	.685*	.308		.028	.079	1.292
		Slope	.619**	.077	.507**	.000	.468	.770
K2	K4[d]	Constant	1.066**	.197		.000	.677	1.455
		Slope	.607**	.056	.621**	.000	.497	.718
K3	K4[e]	Constant	1.480**	.265		.000	.956	2.004
		Slope	.474**	.074	.423**	.000	.328	.621

Note. K1: (General) knowledge and expertise in international issues, K2: Participation in international activities, K3: Knowledge and ability to internationalize the curriculum, and K4: Participation in activities to internationalize the curriculum.

Note. Listwise *N* = 193.

[a]Two respondents were not included in this regression. [b]Three respondents were not included in this regression. [c]Three respondents were not included in this regression. [d]Three respondents were not included in this regression. [e]Four respondents were not included in this regression.

*$p < .05$. **$p < .01$.

The interpretation of these regression data supported views that investments in increasing the international and internationalization knowledge of faculty (e.g., professional development, sabbaticals, international opportunities, workshops, etc.) would eventually lead to an increase in faculty participation in curriculum internationalization activities (Backman, 1993; Ellingboe, 1997a; EUOIA, 1995; Graham, 1998; Hamrick, 1999; Leibold, 1997; Whalley, 1997). In principle, differences between slopes could have suggested which investment could be most efficient in terms of increasing, for example, participation in curriculum internationalization (K4 Curr int part), by identifying the largest slope among the regressions K1*K4, K2*K4, and K3*K4. With the data of this study, however, the confidence intervals for the magnitude of the slopes largely overlapped, and, therefore, the author could not support statistically any particular strategy to increase participation of faculty in curriculum internationalization activities (e.g., strategies focused on increasing general international knowledge, *vs.* strategies increasing international participation, *vs.* strategies prepared to help faculty in becoming more capable in developing new curriculum and specifically in changing and internationalizing the curriculum).

Later in the analysis of data, however, the perspectives of faculty on institutional strategies to increase faculty participation in curriculum internationalization activities were analyzed, bringing additional data and suggestions to the discussion of strategies by indicating which strategies were preferred by faculty.

When putting the constructs together and starting the analysis of data, the author thought *a priori* that constructs defining knowledge of and participation in international and internationalization activities could all go together, conceptually, in a single construct, imagining that these were highly associated variables. In practice, however, the author was reluctant to put knowledge and participation together in a single construct because some scholars argue that the relationship is influenced by many external factors (Hershley, 1986, as cited in Singha, Skaggs, & Nelson, 1996). Also, other scholars argue that general international knowledge and participation are not necessarily linearly correlated with curriculum internationalization (Carter, 1992; Nolan, as cited by French, 1992). Given the information and discussions provided in the literature, the author did not want to put them together without some prior exploration.

The results of the analysis of data showed that in the sampled faculty, institutions, and environment, there was a strong positive “linear” relationship between the variables, and that they could, or should, be put together in a single construct.

Consequently, the variables K1 Int (gen) know, K2 Int (gen) part, K3 Curr int know, and K4 Curr int part were finally together in a single construct, K5 Int know/part, defined as level of knowledge of and participation in international and internationalization activities. The Cronbach Alpha for the reliability analysis of this construct was .8454, high enough for the author to decide to keep it as a construct of the data set, and use it in data analysis instead of separately using the variables that are part of it (note that K5 Int know/part is constructed from the original items, not from the variables).

3. FACULTY PRIORITIES AND PERCEPTION OF STATUS OF THE INTERNATIONALIZATION OF THE UNDERGRADUATE AGRICULTURAL CURRICULUM

The third research question of the study states: What do the faculty of selected colleges of agriculture perceive to be priorities for the undergraduate agricultural curriculum? Within this formula, what is the level of priority given to internationalization? What do the faculty perceive to be the present status of the internationalization of the undergraduate agricultural curriculum at the two institutions surveyed?

3.1. Faculty priorities for the undergraduate agricultural curriculum

First, this section explored respondents’ perspectives about the interest in emphasizing a set of skills, competencies, and experiences in the undergraduate agricultural curriculum. The set was chosen to parallel what is listed in many surveys and questionnaires of studies analyzing characteristics that employers of graduates of colleges of agriculture seek in their new hires. A new item, international awareness and/or experience, was added to the list in order to put into context the priority of internationalization, and see how it leveled with the skills and competencies discussed in the literature. Many may argue that these skills, competencies, and experiences do not belong to the same discourse. The author tried to solve this problem and make

them comparable by assigning one item to each and putting them all under the same subheading: “Several studies have quantified the relative value of different employee characteristics to prospective employers of agriculture college graduates, with varying results. Please indicate, from your perspective, the interest in emphasizing each of the following in the undergraduate agricultural curriculum.”

The variables resulting from these questions were: 1. Interpersonal skills (e.g., leadership, management, teamwork): S1 Interpersonal. 2. Problem solving, critical thinking, and analytical skills: S2 Analytical. 3. Communication skills (e.g., listening, verbalizing, presentation, professional writing): S3 Communication. 4. Technical competency (in the “major” field of study): S4 Technical. 5. International awareness and/or experience: S5 International. 6. Computer skills (e.g., basic office packages and programming, internet and database use): S6 Computer. 7. Prior work and/or internship experience: S7 Experience.

Table 10 presents the means, confidence intervals, and separation of means of faculty ratings of the level of priority in the undergraduate agricultural curriculum attached to the different skills, competencies, and experiences in the list. Figure 12 shows these data graphically to facilitate the reader’s visualization of how the ratings for the different skills compared to each other.

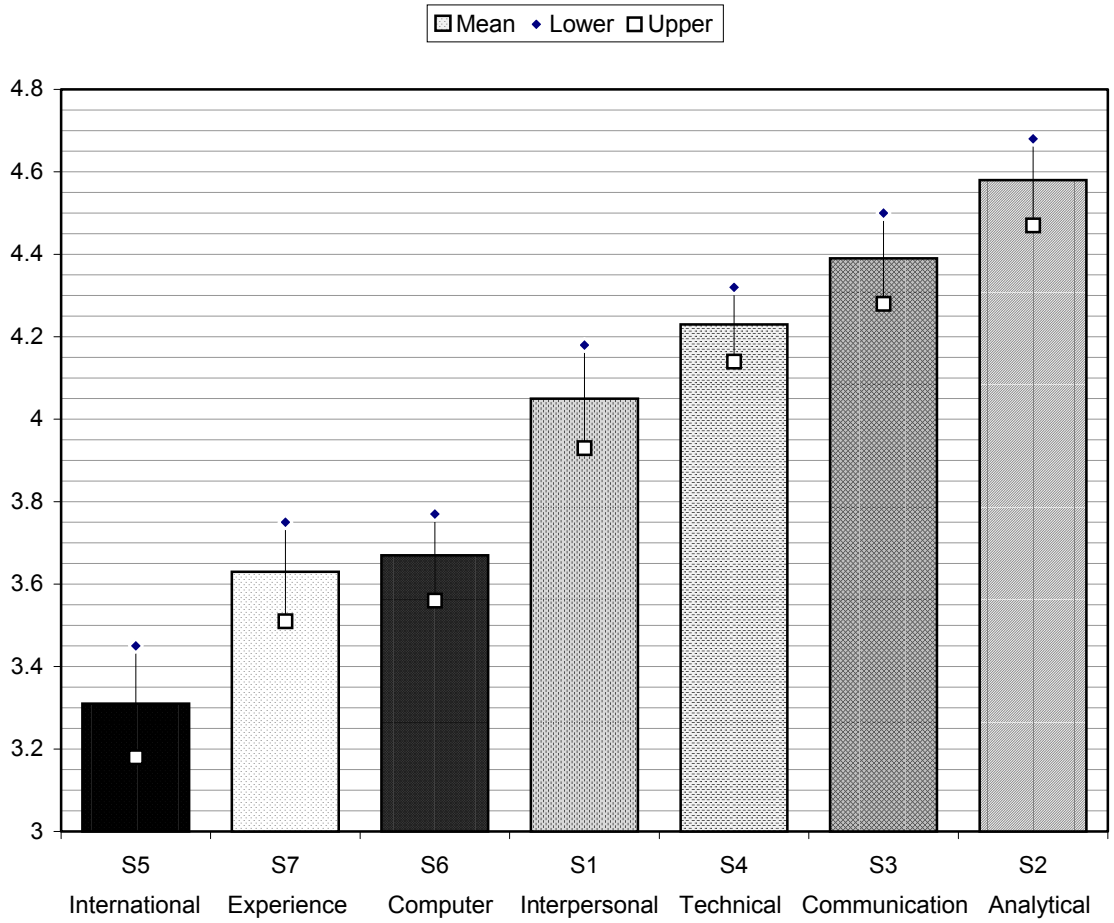
Table 10

Means, Confidence Intervals, and Separation of Means of Faculty's Ratings of the Levels of Priority Associated with Emphasizing a Set of Skills, Competencies, and Experiences in the Undergraduate Curriculum in Two Colleges of Agriculture, 2003

			95 Confidence Interval		
Variable	*M*	*SE*	Lower	Upper	Separation of means[a]
S5 International	3.31	0.0684	3.18	3.45	a
S7 Experience	3.63	0.0608	3.51	3.75	b
S6 Computer	3.67	0.0549	3.56	3.77	b
S1 Interpersonal	4.05	0.0616	3.93	4.18	c
S4 Technical	4.23	0.0475	4.14	4.32	cd
S3 Communication	4.39	0.0556	4.28	4.50	d
S2 Analytical	4.58	0.0522	4.47	4.68	e

Note. Listwise $N = 188$.

[a] Means that do not share same letter in this column differ significantly at $p < .05$, using Bonferroni's adjustment for multiple comparisons.



Listwise *N* = 188

Figure 12. Faculty's ratings of the levels of priority associated with emphasizing different skills, competencies, and experiences in the undergraduate agricultural curriculum, pertaining to the study of the internationalization of the undergraduate curriculum in two colleges of agriculture, 2003.

The preceding explanations, Table 10, and Figure 12, give an overview of, from the perspective of faculty, what was important to emphasize in the undergraduate agricultural curriculum. It is important to note that respondents were not asked to score the importance of the skills, as skills themselves, but to score the level of priority in emphasizing them in the undergraduate agricultural curriculum. This meant that even if a faculty member considered communication skills more important than technical skills

for a successful life and career, this same faculty member could have indicated a higher interest in emphasizing technical skills than communication skills, if he or she assumed that communication skills were to be acquired elsewhere (e.g., life experience, core curriculum, etc.) In spite of this, it is important to note that technical skills were ranked only third, after communication and analytical skills. This was consistent with much literature and many employers' reports emphasizing preference for graduates with good communication, analytical, and interpersonal skills, rather than very competent technical experts, as indicated in the literature review (Boland & Akridge, 2003; Harvey, Moon, & Geall, 1997; Hayes, 1995b, Kranz, 1995; Moy, 2000; NAECR, 1989, as cited by Schneider & Suter, 1989; NACE, 2000 as cited by Ricketts & Rudd, 2002; Townsend & Kunkel, 1996). It was, however, surprising, because colleges of agriculture are often criticized for continuing to emphasize, and concentrate almost uniquely, on technical "training," and this contradiction is often explained by "blaming" faculty members. The question then arises, that if agriculture faculty recognize the need to improve students' analytical, communication, and interpersonal skills, in some cases even more than technical skills, why hasn't curriculum changed more radically in recent decades? Why is one of faculty's arguments for "stagnation" that greater emphasis on these other skills would diminish the time spent in assuring technical competency of students?

In fact, many of the faculty interviewed recognized as very valuable for instruction any activity to develop further the students' interpersonal and communication skills. However, some explained that they could not use such activities in their classes, either because they were not appropriate to their "subject matter," or because they did not have enough time. When referring to an emphasis of improving students' problem solving, analytical, and critical thinking skills, however, faculty were much more likely to be interested in and use any technique that could help. In some cases, the reasoning was that these were the most important tools for students to be successful in their lives and careers. In other cases, emphasizing the development of analytical skills in the undergraduate curriculum was considered necessary because it was the only way for the students to understand and apply (and for the faculty member to teach) the subject matter of the course.

Students' international awareness was also considered very important by most of the interviewees, and was mostly termed as important in the open-ended questions of the survey. However, not only did the respondents have different perspectives about what was meant by 'international awareness' and how it could be increased (discussed in other sections of this chapter), but respondents also had different views of how it would affect and interact with other topics that needed to be covered in the curriculum. For some, curriculum internationalization, like activities to reinforce communication and interpersonal skills, "compete" for time with the curriculum's necessary technical content, as mentioned by some of the respondents: "Internationalization would take away from . . . majors," "the curriculum is already too full," "it would have to replace other . . . things."

For others, internationalization was not a question of competition for time, but a question of ability to infuse international issues throughout the curriculum. Survey respondents and interviewees using this argument indicated two major constraints associated with this solution: Faculty ability and experience (or lack thereof) to do so and the type of technical content, because, according to some, while some technical subjects are compatible with infusion of international contents, others are not; "[internationalization] is totally dependent on the academic area of study," and "in some courses internationalization is not appropriate . . . would be counterproductive."

One interviewee used a different argument to explain the relationship between internationalization and technical subject matter. According to this faculty member, even technical content is subject to change depending on the cultural "lens" used to look at it. In consequence, to teach technical content, one should first internationalize the teaching process. As a model to follow, he gave the example of an agricultural engineering course that has the students analyzing problems from different perspectives, and exploring how the same technical problem is addressed and solved differently depending on the cultural context of the people dealing with it.

Finally, one of the interviewees did not see the issue as a matter affecting the "content" of the curriculum, but focused only on the campus environment, cultural background, and operational aspects of teaching (teaching and learning methods, grouping of students, place, and time). This viewpoint mostly considered the situation

and roles of international students in U.S. campuses, and also the value to students of spending at least a full semester abroad.

It is important to note that the variable S5 International (international awareness and/or experience) as was used in the questionnaire and in this section, came from a single item in the questionnaire. Only one item was used in order to make it directly comparable with the rest of the skills and competencies analyzed in this section (also from single items). However, in order to analyze faculty perspectives about the relevance of internationalization from a broader perspective, and to study relationships with other constructs, a more "solid" construct was used, the "T1 Relevance" variable, which is presented in the following subsection of this chapter.

Finally, to close the analysis discussion of this section, the researcher studied a new construct, S8 Employers, a construct grouping the variables that address the three skills most appreciated by employers (according to many quotes found in the literature): Interpersonal, analytical, and communication skills. This construct could be helpful if one wanted to have a "comparison variable" by which to compare the data from this study with the numbers in the literature. The Cronbach Alpha for the reliability analysis of this construct was .8072.

3.2. Perception of relevance and status of internationalization of the undergraduate agricultural curriculum

The T1 Relevance variable was constructed from five different items of the questionnaire. All the questions/items forming this new construct had responses based on a Likert-type scale from 1 (very low/negative) to 5 (very high/positive). This new construct, "T1 Relevance," quantified the personal perspective of faculty about the relevance of internationalization of the curriculum. The Cronbach Alpha for the reliability analysis of the T1 Relevance construct was .8046. On a 1 to 5 scale, T1 Relevance had a minimum value of 1.4 and a maximum value of 5, a mean of 3.70, and a standard deviation of 0.75028 (N = 191). The mean of 3.70 represented a value between "average/neutral" and "high/somewhat positive."

The T1 Relevance variable added a holistic point of view that was not provided by the variable S5 Internationalization. When asked to respond to the item corresponding to S5 Internationalization, faculty members were given a whole set of other skills, competencies, or experiences. A “comparison,” or even a virtual ranking among them, was expected in most cases (the list of all the skills, competencies, and experiences was presented under the same general question and subheading). This meant that even a faculty member who was usually very vocal about the importance and pressing need for internationalization could have ranked S5 Internationalization on the low side, by trying to emphasize the essentiality of the other ones. As mentioned before, some would argue that the items in the list do not belong to the same discourse and therefore are not really comparable.

The situation for the construct T1 Relevance was different: Some of the items forming the construct were introduced individually, were not presented under any comparison list, and focused on the “personalized” interests and perspectives of the respondent toward internationalization when thinking exclusively about internationalization and not comparing it with other issues.

It is precisely the tendency to compare and contrast issues that often diminishes the perception of relevance of internationalization, especially if people view it as a mutually-exclusive alternative to other issues. In fact, many survey respondents saw internationalization as a “replacement of something else,” as it pervaded many of the answers to the open-ended questions, for example: “The curriculum is already overloaded,” “[internationalization] compete[s] with other activities, “ . . . at the expense of gaining technical expertise,” and “no one wants to discuss what will be left out of the curriculum when ‘internationalism’ is added.”

A similar problem was found by the UGA-CAES 2010 strategic planning committee during 2003. One of their first public steps was to ask all CAES faculty, staff, students, and stakeholders to vote on issues that they considered most important for the college. Sixteen issues were put to vote and each respondent was to vote for only three issues. One of the issues was globalization, and was phrased as “How can the CAES address the issue of globalization to benefit our students and clientele?” There were 3,406 votes cast. The issues that received the most votes were: “What is the role of the college in

improving sustainability and profitability of agriculture and natural resources in the state?" and "What can we do to further improve staff morale and job satisfaction?," each with 344 votes. Third was "How should the CAES be structurally organized to best fulfill its mission and make its management operations more efficient and effective?, " with 330 votes. The issue receiving the fewest votes was "globalization," with only 68 votes. Although not surprising, the results required some introspection and interpretation. One of the conclusions reached was that even strong supporters and faculty active in the internationalization process were likely to have voted for issues other than globalization, not because they did not consider it important, but because the issue of globalization was at a different level and discourse than some of the other issues. For example, even if a respondent thought that internationalization was at the forefront of the educational reform and improvement process, this person probably voted for the broader issue "enhance education" rather than "globalization," that could be considered as one of the important tasks in enhancing the education. The strategic planning committee understood this dilemma. However, they did not want to completely eliminate internationalization from the strategic planning process, and they charged the modeling committees dealing with the top seven issues (based on numbers of votes) to include diversity, globalization, and internationalization into their models: "The Task Force consciously chose not to model diversity and globalization as separate issues, because they should not be the responsibility of separate offices within the college, but a part of everything we do" (CAES Strategic Planning Task Force, 2003, p.2).

The "comparison dilemma" explains partly why it is so important for its supporters and scholars to clarify the meaning of internationalization and present it as a *process* embedded in all programs, rather than an additive, another discipline or focus, or a mutually-exclusive alternative, but as a necessary ingredient in everything we do. In fact, some survey respondents shared this perspective and tackled the idea. In their own words: "Internationalization is understood as just an additive, not as what it should be, a quality perspective, a revitalization of the curriculum," and "people do not understand what internationalization means: They have a one-sided view, and do not look at it from a multidimensional perspective," and "internationalization should be viewed and implemented as a whole, not as a cut-and-paste at the pleasure and needs of some."

Another construct of interest was T2 Status, one that measured what the faculty perceived to be the status of internationalization of the undergraduate agricultural curriculum at their institution. This construct was composed of two items from the questionnaire, each with responses on a 1 (no) to 5 (yes) Likert-type scale. The first item asked about whether the (respective) college graduates were prepared to compete in the global job market (capitalizing on the competency approach to internationalization of the curriculum) (ACE, 2000; AIEA, 1995a; van der Wende, as cited in AUUC, 2000), while the second item asked directly if the college's curriculum was, or was not, internationalized (emphasizing –although not uniquely - the activity approach) (Arum & van de Water, 1992). The Cronbach Alpha for the reliability analysis of the T2 Status construct was .7917. The T2 Status variable had a minimum value of 1 and a maximum value of 5, a mean of 2.90, and a standard deviation of 0.95257 (*N* = 189). The mean of 2.90 represented a value between "not much" and "neutral."

Respondents were also asked if they thought that further internationalization of the curriculum was necessary (T3 Need). Responding on a Likert-type scale from 1 to 5, 185 respondents answered the question, which had a minimum value of 1 (no) and a maximum value of 5 (yes), with a resulting mean of 4.12 and a standard deviation of 1.079. The mean of 4.12 represented a value between "somewhat" and "yes."

This item (T3 Need) was not included in the prior construct (T2 Status) because the researcher considered that they measured different things. For example, from one perspective, if a respondent thought that the curriculum was not internationalized at all, s/he would be expected to respond that further internationalization was necessary, and respondents indicating that the curriculum was very internationalized, would be expected to answer that further internationalization was not necessary (negative correlation). However, the relationships could also be opposite; it is possible that even if someone thought that the curriculum was already very internationalized, this person could have responded that further internationalization was very necessary (if the person viewed internationalization as a continuous process that has "no end," just as improvement of the curriculum). On the other hand, another respondent might have considered the curriculum not internationalized at all, but also indicate that further internationalization was not necessary (if the person viewed internationalization as

something without value). In fact, to demonstrate even further that T2 Status and T3 Need did not belong in the same construct, the researcher determined that the Cronbach Alpha for the reliability analysis of this theoretical construct (the three items together) would be .2134, far too low to be acceptable.

Based on this reasoning, two new questions arised: 1. What was the relationship between the answer to questions dealing with T1 Relevance and those dealing with T2 Status? This was similar to asking if the relevance that internationalization had for a specific faculty member affected his/her perception of status of internationalization at his/her institution? 2. What was the relationship between T1 Relevance and T3 Need? This was similar to asking if the perception of relevance affected the perception of need for further internationalization? The results of the analysis for these questions are shown in Table 11.

Table 11 shows that the faculty perception of relevance of curriculum internationalization (T1 Relevance) was not correlated with their answers to the questions about the status of internationalization of the curriculum. On the other hand, the perception of relevance was linearly and positively correlated with their answer to the question about the need for further internationalization. These numbers were in part intuitive (after the fact), because the perception of the status of internationalization "should" depend on the status of internationalization in the institution "alone," and not on the importance that internationalization had for the respondent. On the other hand, it was also intuitive that an individual who placed high relevance on internationalization would have perceived there to be greater need for further internationalization. The status of internationalization could, in this case, be a "modifier" of the relationship, but not as important as the relationship itself. Specifically, if one considers internationalization to be important, one might want it to be an on-going process of continuous improvement that does not necessarily reach an end once a certain "bar" is reached. These results best supported the process approach to internationalization (de Wit, 1995, 2002; Ellingboe, 1997a, 1997b; Fortin, 2001; Groennings & Wiley, 1990; Harari, 1989, 1992; Klasek, 1992a; Knight, 1997a; Lambert, 1989; Mestenhauser, 1998; Tonkin & Edwards, 1981).

Table 11

Parameter Estimates of Linear Regressions Between Faculty Perception of Relevance of Curriculum Internationalization (T1 Relevance), Status of Curriculum Internationalization (T2 Status), and Need for Further Curriculum Internationalization (T3 Need), in Two Colleges of Agriculture, 2003

			Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B	
Ind. Variable	Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.	Lower Bound	Upper Bound
T1[a]	T2	Constant	2.960**	0.360		.000	2.250	3.669
		Slope	-.016	0.095	-.012	.865	-.203	.171
T1[b]	T3	Constant	-.198	0.249		.428	-.688	.293
		Slope	1.160**	0.065	.795**	.000	1.031	1.289

[a]*N* = 189. [b]*N* = 185.

***p* < .01.

By looking at the different values of the means T1 Relevance (3.70), T2 Status (2.90), and T3 Need for further internationalization (4.12), there appears to be plenty of room for improvement. Further, from the perspective of faculty perception of relevance and need, the situation seems favorable for internationalization to flourish, or, as one of the survey respondents indicated: "I feel that progress has been made, but there is room [and potential] for further growth."

To understand better the perceptions of relevance, status, and need for further internationalization, the researcher also dealt with these issues in both the open-ended questions of the instrument and in the interviews. Two of the open-ended questions addressed these topics: "What, in your opinion, is the single most important reason why internationalization of the curriculum is or is not important?" and "What, in your opinion, is the main reason why internationalization is or is not progressing?"

In most surveys, the respondents chose to give reasons why internationalization *was* important ("positive" answers), while they chose to focus on reasons why it was *not* progressing ("negative" answers).

Most of the "positive" responses were placed within the framework described in the literature review for rationales for internationalization of U.S. higher education, which included 1) academic rationale: Preparing students for productive careers and lives, and quality of the institution (Bremer & van der Wende, 1995; Ellingboe, 1997b; GASEPA, 1999; Johnson, von Bargen, & Schinstock, 1995; Knight & de Wit, 1999; Kunkel, Maw, & Skaggs, 1996; Shetty & Rudell, 2000), 2) U.S. economic and political competitiveness (ACE, 1996; Groennings & Wiley, 1990; Hamrick, 1999; Knight, 1997a; Leibold, 1997; Lyman, 1995), 3) increasingly interdependent nature of the world (Bremer & van der Wende, 1995; Carter, 1992; Knight, 1997a; Rahman & Kopp; 1992), and 4) cultural and social issues: Diversity, peace, tolerance, humanitarian, and humanistic viewpoints (Knight, 1997b). Some quotes from the survey answers follow.

1. Academic rationale: "For the good of the students and their education," "the world of our students will be an international one," "increase the ability of our students to function [and compete] in the increased internationalization of agriculture and the global market," "supply our graduates with another tool that will help them excel in life (not only their jobs)," "expose our students to cultural, agricultural, and environmental diversity," "to create truly educated students, not just technically competent ones" "it will make our students more marketable when searching for jobs," and "our students will face decisions in their careers that will require some international background;"
2. U.S. economic and political competitiveness: "Recognition that we have to learn to compete and cooperate with foreign agriculture [and businesses]," "we must compete with other countries economically and politically," "know our competitors," "the U.S. is not the source of all [answers, technology, and] advances," "effect of foreign policies on agriculture," and "we have an international economy. We [the U.S.] will be left out if we fail to train students who can work internationally;"
3. Increasingly interdependent nature of the world: "We are becoming increasingly interconnected and interdependent in everything we do," "we can learn from

understanding international problems/solutions. We are all affected by what happens in other parts of the world," "global conditions definitely impact Texas and awareness provides an opportunity to prepare and respond," "problems, [issues, approaches] and solutions go beyond country boundaries," and "the whole earth is one system of dynamic interactions;"

4. Cultural and social issues: "Better understanding and communication between the U.S. and other nations [peoples] of the world," "the leaders of tomorrow require a global perspective," "we must provide leadership in an effort to feed the world," "open up dialog between cultures," "the talents of many create the strength of one – different perspectives, cultures and instincts uniting to achieve one common goal," "the only way to educate people to promote and maintain world peace [and prosperity]," and "our students must know . . . so they can be able to influence long-term betterment of the countries with which they interface."

The most frequent "negative" answers focused on 1) lack of need, 2) isolationist and provincial attitudes of faculty, students, and stakeholders, 3) lack of vision, leadership, and support from the college administration, and 4) faculty lack of knowledge and limitations:

1. The most negative comments came from respondents who, personally, did not see the need for or importance of internationalization: "Not important," "it is not needed," "it should not be done," "let's do what is important first," "I do not see the need," "it is secondary," "very low priority in my opinion," "we get little new knowledge from international activities – they gain a lot!," and "We are a Land Grant institution. Our primary mission should be to serve our immediate clientele. 'International' efforts often aid our competition while we cover the costs of technology development;"

2. Respondents explaining stagnation of internationalization due to (other people's) isolationist attitudes argued that there was both lack of interest for and awareness of the need for internationalization ("the greatest limit to international outlooks for our students is the fact that they don't see themselves as directly affected"), as well as generalized negative perceptions for anything international or global ("people are very conservative . . . and do not want to deal with other cultures, ethnic groups and accents"). In many instances, respondents indicated that these were problems

shared by administration, faculty, students, families, and other stakeholders. On other occasions, the explanation was that the problem was that internationalization "is misunderstood," and that we do not progress because "we have continued to operate as if international aid/education is a welfare distribution system," because "some people view internationalization as something we do for others, as if it was disinterested 'aid,' as something that not only does not help us, but creates competition against us." Respondents who described these negative attitudes from the position of administrators, students, and taxpayers also considered that not only is participation in international activities not rewarded or supported, but on occasion it is actively discouraged;

3. Many respondents indicated that the problem stems from the lack of leadership from the college administration. For many, the "perceived lack of leadership from college administration," had many ramifications and problems associated with it: Lack of vision, goals, objectives, direction, communication, organization, and coordination. This also meant that "neither the needs [justification] nor the potential payoffs [benefits] have been clearly established." In addition, the lack of leadership is then correlated with a "lack of tangible support," including overcommitment of faculty together with lack of financial support, staff availability, time, recognition, or even encouragement. More criticisms were directed to the college-level administration than to university-level administration, at both UGA and TAMU. In the cases where the university-level administrations were specifically mentioned, the complaint was directed more toward their lack of understanding of the importance and specific needs of agriculture and students of agriculture rather than lack of support of the internationalization process;
4. According to some respondents, the problem was that there was a lack of faculty international experience, expertise, and even basic knowledge of international issues: "Many faculty are not internationalized themselves . . . and have their own limitations," and "most faculty lack the personal experience of travel, study, and problem solving abroad."

For some respondents in UGA-CAES, another obstacle for advancing the internationalization of the curriculum in that college was the fact that the college does

not require a foreign language, and the underlying message that goes with it. The lack of a foreign language requirement, they argued, not only puts students at a disadvantage when compared with those from other colleges in terms of preparation but also closes many doors to them in high quality study abroad and exchange programs. Further, the lack of a language requirement is also perceived by some to send the wrong message to students about how the college values internationalization. This issue has been extensively discussed among faculty and administrators in CAES, with justification arguments mostly relating to recruitment issues and the difficulty of increasing the number of course requisites in an already full and inflexible curriculum.

Other barriers for internationalization mentioned in the interviews and as answers to the open-ended questions from the questionnaire were lack of flexibility of the curriculum, lack of consistency and communication among administration, faculty, and students, and inadequate emphasis by advisors on having students participate in international experiences.

The information drawn from the interviews was similar to the results obtained from the survey analysis, both quantitative and qualitative, although in general the interviewees regarded internationalization as more relevant than the average survey respondent and direct criticisms of the college administration were scant. However, some interviewees agreed with many of the survey responses in that their college was lacking vision and organization with respect to internationalization efforts, and that recognition for such efforts was inadequate. Most interviewees agreed that there was a lot to do to enhance, advance, and further improve the process of internationalization in CAES, but they also indicated that it was very important to recognize that valuable programs and efforts were already in effect.

4. ACADEMIC PROGRAM STRATEGIES FOR THE INTERNATIONALIZATION OF THE UNDERGRADUATE AGRICULTURAL CURRICULUM

The fourth research question states: How do the faculty in selected colleges of agriculture evaluate and prioritize different academic program strategies used for the internationalization of the curriculum?

Even if one considers that internationalization should be a multifaceted effort, that there is not a single approach proven to be optimal, and only views individual strategies as small parts of a larger, integrated endeavor, eventually the time must come to look at specific strategies (Kezar, 2000; Kwok & Arpan, 1994). Because not all approaches may be adequate in all cases, and resources are invariably finite, it is important to assess each choice according to the individual context, institution and faculty members who are going to be asked to participate in the process (Brock, 1993; Keller, 1983, as cited in Davies, 1992; Shetty & Rudell, 2000).

Many authors have written about internationalization strategies. In the survey of faculty, the strategies were separated into two conceptual groups: 1) Actions that directly affect, change, and internationalize the curriculum, collectively referred to as "academic program strategies," and 2) Programs to support faculty in their efforts to internationalize the curriculum, collectively referred to as "institutional strategies." This section presents and analyzes the findings related to the academic program strategies.

Faculty responding to the survey were asked to indicate which of the listed academic program strategies were "the best uses" of the college's resources (e.g., faculty time, personnel, funds) toward the support of the internationalization of the curriculum. The strategies listed were the following: 1) Infusion: Integrating internationalized curriculum into existing on-campus courses (A1 Infusion), 2) On-campus, international subject matter courses (A2 On-campus), 3) Technology and virtual mobility: Use of "distant" students, faculty, and resources (A3 Virtual), 4) Concentrations: "International" subject matter certificates, minors, and majors (A4 Concentrations), 5) Short-term (2-5 weeks) study abroad courses: A cohort of students with faculty from "home (A5 Short SA), 6) Cohort semester abroad, at a foreign university, but with faculty and students from home (A6 Cohort), 7) Semester exchange programs and internships: Individualized programs where students are on their own (A7 Exchange), and 8) Internationalize

campus environment: Increase in number of international students and faculty, organization of workshops, discussions, and varied “social” activities of international subject matter (A8 Environment). The strategies were chosen to parallel the most commonly cited strategies in the literature, as described in Chapter II.

Table 12 presents the means, confidence intervals, and separation of means of faculty’s ratings (best use of resources) of these academic program strategies for the internationalization of the curriculum. Figure 13 shows these data graphically, designed to facilitate the reader’s visualization of how the ratings for the different academic program strategies compare to each other.

One can see in Table 12 that there are two columns for the separation of means. The first column, with the heading “Bonferroni,” corresponds to the Bonferroni separation of means. The second column, with head “Adj.[b],” corresponds to Bonferroni’s separation of means adjusted by the researcher. This differentiation was necessary because when doing the mean separation and using Bonferroni’s adjustment for multiple comparisons, a rare occurrence occurred. Specifically, the mean of variable A1 Infusion, with a lower value than the mean and confidence interval of variable A6 Cohort, is not significantly different from the larger means of A5 Short SA and A7 Exchange, while the mean of A6 Cohort is significantly lower than the mean of A7 Exchange. This can be explained by looking at how Bonferroni’s adjustment for multiple comparisons works; it is a pairwise comparison, that uses the difference between the means and establishes the confidence interval for the difference by using the standard error of the difference (note, however, that the confidence intervals showed in Table 12 and Figure 13 only depend on the mean of the variable and its standard deviation, not on the “relationship” between any two variables). If one looks closely at the pairwise comparisons between the variables in question the standard errors of the mean differences of A1 Infusion with A5 Short SA, A6 Cohort, and A7 Exchange are much higher than any of the standard errors of the mean differences among A5 Short SA, A6 Cohort, and A7 Exchange, as shown in Table 13. These larger standard errors of the mean differences will, in turn, increase the size of the confidence interval for the difference, and increase the likelihood of the confidence intervals reaching zero (which is the same as the means being not significantly different). The researcher, in order to

avoid confusion of the reader regarding this unusual occurrence, adjusted the separation of means as shown in Table 12.

Table 12

Means, Confidence Intervals, and Separation of Means of Faculty Ratings of Eight Academic Program Strategies for the Internationalization of the Undergraduate Curriculum in Two Colleges of Agriculture, 2003

			95 % Confidence Interval		Separation of means[a]	
Variable	*M*	*SE*	Lower	Upper	Bonferroni	Adj[b]
A3 Virtual	3.03	0.07512	2.89	3.18	a	a
A2 On-campus	3.08	0.06667	2.95	3.21	a	a
A4 Concentrations	3.11	0.06638	2.98	3.25	a	a
A8 Environment	3.30	0.07826	3.14	3.45	a	a
A1 Infusion	3.68	0.06658	3.55	3.81	bc	b
A6 Cohort	3.69	0.07284	3.55	3.84	b	b
A5 Short SA	3.81	0.06665	3.68	3.94	bc	b
A7 Exchange	3.93	0.06743	3.79	4.06	c	b

Note. Listwise *N* = 176.

[a] Means that do not share the same letter in this column differ significantly at $p < .05$, using Bonferroni's adjustment for multiple comparisons. [b]Bonferroni's separation of means adjusted by the researcher.

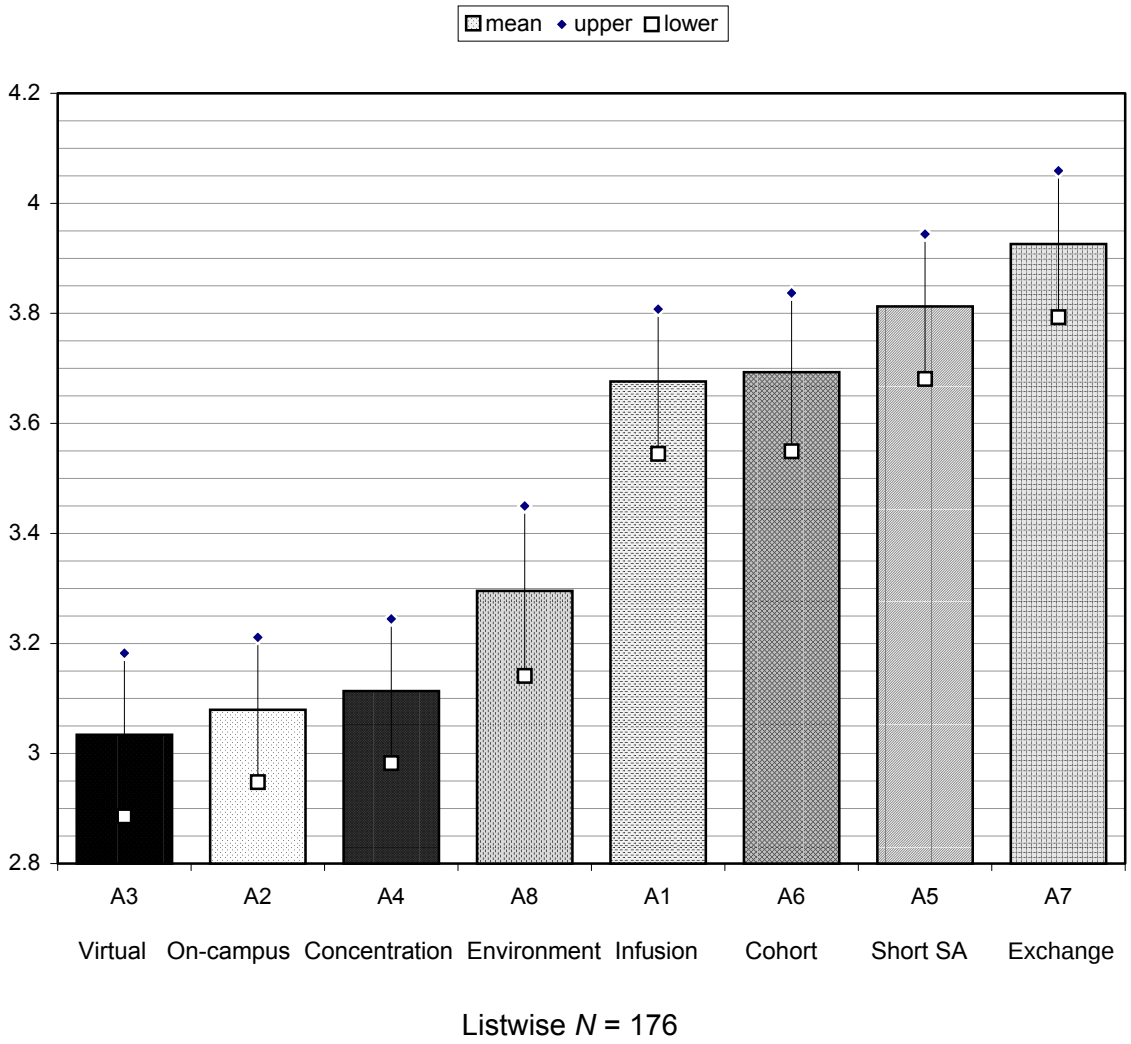


Figure 13. Rankings of faculty ratings of eight academic program strategies for the internationalization of the undergraduate curriculum in two colleges of agriculture, 2003.

Table 13

Standard Error of the Difference of Pairwise Comparisons of the Means of Four of the Academic Program Strategies for the Internationalization of the Curriculum

Variable	A1 Infusion	A5 Short SA	A6 Cohort	A7 Exchange
A1 Infusion	--	.090	.099	.090
A5 Short SA		--	.059	.076
A6 Cohort			--	.064
A7 Exchange				--

Note. Listwise *N* = 176.

Intuitively, if the standard deviation of the difference of the means is lower in the pairwise comparison between A6 Cohort and A5 Short SA than in the pairwise comparison between A1 Infusion and A5 Short SA, this means that the variables A5 Short SA and A6 Cohort are more correlated than A1 Infusion and A5 Short SA. From a practical perspective, knowing the value and significance of correlations may help us understand if the preference of a specific faculty member toward a given strategy is predictive of his/her preference for another strategy. It also helps us know which strategies are similarly accepted by all faculty members, regardless of other preferences, and which strategies have strong supporters as well as “indifferents.” In an analysis of Table 14, a table of correlations between faculty ratings of the eight academic program strategies discussed in this section, one can see different “groupings” of faculty ratings of the eight academic program strategies, as shown graphically in Figure 14. This figure helps us understand how different faculty might use (or not use at all) different “aids” for them to internationalize the curriculum, and how different strategies for internationalization might help to put together pieces of the internationalization puzzle. For example, by exclusively funding faculty members who have been active in infusion efforts and on-campus courses, maybe only these pieces of the puzzle might actually continue to show visible changes. In contrast, by only funding faculty members who have active study abroad programs, one might see that

infusion efforts do not flourish. Although the ranking of the academic program strategy "A4 Concentrations" was far from the highest, by funding faculty members active in concentration programs, one might find growth in many different aspects of the internationalization process, including active and growing infusion efforts, change in the campus environment, increase in study abroad programs, virtual mobility, more on-campus international subject matter courses, etc. The information about the academic program strategies, together with faculty ratings of institutional strategies to help them in their internationalization efforts, discussed in the next section of this chapter, might help in better understanding this issue.

Note that in both Table 13 and Table 14, missing cases were excluded listwise instead of pairwise in order to be consistent with the analysis of data in Table 12 and Figure 13. One can see both from the correlations in Table 14 and from the relationships in Figure 14, that A5 Short SA, A6 Cohort, and A7 Exchange are highly correlated and belong to the same group. They not only belong numerically to the same group, but also conceptually; they all are student mobility strategies. Concomitantly, they could be grouped into a single construct, "A9 Mobility." The Cronbach Alpha for the reliability analysis of this construct is .7628.

One could argue other variables could be grouped into other constructs, for example, grouping together A1 Infusion, A2 On-campus courses, and A4 Concentrations, as curricular actions and programs that can be fully done on-campus. These even "match" numerically, according to the correlations table (Table 14). However, the researcher did not want to put them in the same construct because they did not match from other very important conceptual perspectives, in particular the selectivity perspective. The selectivity perspective looks at the reach and broadness of a strategy, and at the number and percentage of students affected by it. Infusion is a strategy with the potential of affecting all students both directly and indirectly (Acker, 1989; Faustman, Riesen, Suter, & Vietor, 1996; Harari, 1989, 1992; Kwok & Arpan, 1994; Reiff, 1997; Shetty & Rudell, 2000; Tonkin & Edwards, 1981). On the other hand, on-campus courses and concentrations only affect a small number of students, specifically those students who enroll in such courses and concentration programs. In most cases, students who choose to enroll in these programs are often already interested in the

internationalization of their education. Also, in most universities, “international” concentration programs often require a period of study abroad, which would probably better support the idea of A4 Concentrations being in the same construct as the mobility programs, rather than with A1 Infusion or A2 On-campus.

Table 14

Correlations and Significance Between Faculty Ratings of Eight Academic Program Strategies for the Internationalization of the Curriculum, in Two Colleges of Agriculture, 2003

Variable	Cor	A2	A3	A4	A5	A6	A7	A8
A1 Infusion	*r*	.311**	.013	.217**	.090	-.003	.107	.111
	sig.	.000	.868	.004	.234	.966	.158	.142
A2 On-campus	*r*	--	.133	.311**	.092	-.011	.072	.285**
	sig.	.	.078	.000	.223	.881	.339	.000
A3 Virtual	*r*		--	.178*	.098	.047	.067	.283**
	sig.		.	.018	.195	.540	.377	.000
A4 Concentrations	*r*			--	.248**	.216**	.250**	.169*
	sig.			.	.001	.004	.001	.025
A5 Short SA	*r*				--	.648**	.365**	.123
	sig.				.	.000	.000	.104
A6 Cohort	*r*					--	.588**	.205**
	sig.					.	.000	.006
A7 Exchange	*r*						--	.221**
	sig.						.	.003
A8 Environment	*r*							--
	sig.							.

Note. Listwise *N* = 176.

*Correlation is significant at the .05 level (2-tailed). **Correlation is significant at the .01 level (2-tailed).

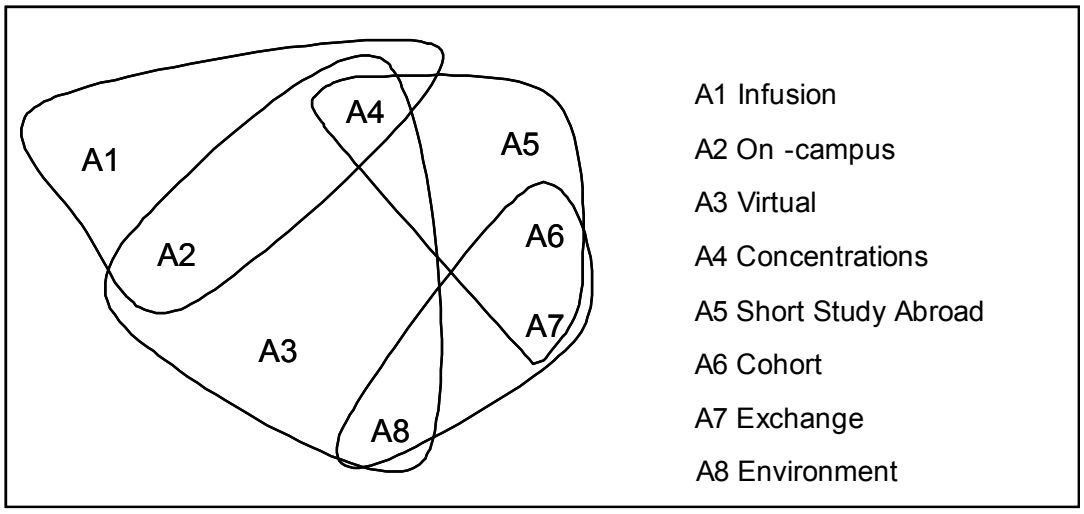


Figure 14. "Groupings" of faculty ratings of eight academic program strategies for the internationalization of the curriculum, pertaining to the study of the internationalization of the undergraduate curriculum in two colleges of agriculture, 2003.

Finally, for comparison and correlation analyses, it was of interest to have all variables corresponding to the different academic program strategies under the same construct. Consequently, a new variable, A10 Academic, was constructed from the eight academic program strategies. The Cronbach Alpha for the reliability analysis of this construct is .6582, the minimum value is 2.00, maximum value 4.57, mean 3.4547, and standard deviation 0.5153 (*N* = 189).

In addition to the survey questions about academic program strategies that were to be rated with a Likert-type scale, the researcher included an open-ended question asking: "What, in your opinion, is one effective way to internationalize the curriculum?"

Some respondents suggested that the college should concentrate efforts in increasing and stimulating the interest of students (and their families) in internationalization and international activities, although in many cases these respondents did not give ideas, suggest strategies, or indicate any procedures to follow. Other respondents gave a long list of possible strategies, and some others indicated that internationalization should be addressed "from a multidimensional perspective."

Most respondents, however, did specify which academic program strategies could work best from their perspective. A large percentage of respondents focused on mobility strategies, in some cases asking for “international experiences for students in all shapes, sizes, and colors,” sometimes without specifying the specific characteristics of the strategies, while others indicated the specific type of program to which they were referring. The format mentioned most often was short-term study abroad, followed by long-term internships and semester-long exchange programs at other universities. Programs similar to the one referred to as long-term “cohort” programs in this dissertation were seldom mentioned. Some ideas for variations of mobility strategies were given, such as joint academic programs with foreign universities, including students in cooperative research with foreign institutions and giving them the opportunity to work on their research with international groups both at home and abroad. In some cases, the respondents indicated that the programs should be in English to facilitate student participation, while, in other cases, the respondents indicated the contrary and specified that to make the experience worthwhile, the programs should not be developed in English-speaking countries, and should require knowledge and use of a foreign language. Some respondents pointed out that mobility programs were to be offered to those students interested, while others asked for them to become requirements for all students.

Another strategy that was brought up regularly was what we have referred to as “infusion” in this dissertation. It was often asserted that one of the advantages of this strategy was that it allowed “repeated emphasis” and it could be used in most instances, throughout the curriculum, with all the students, at different levels, and from the first to the last day of the college experience. On some occasions, respondents mentioned the word infusion, although in most cases they used other words, such as integration and inclusion, or explanations such as “to provide an international perspective in existing courses and curriculum.” In other instances, respondents specified some of the activities that we have listed as components of “infusion,” including: Bring international examples and experiences into the classroom, stimulate discussions about international topics, bring guest lecturers to discuss specific international issues, include in the teaching process international faculty, students, and visiting scientists, develop activities and problem-solving exercises to help students

understand international issues and to link their technical knowledge with the world, target international issues with reading assignments, and have U.S. students work in groups with international students.

Another strategy that was mentioned by many respondents, although not as often or extensively as mobility programs and infusion efforts, was the development of on-campus international subject matter courses. The use of concentrations (majors, minors, and certificates) was mentioned only once.

According to many respondents, the internationalization of the campus environment was also an effective way to internationalize the curriculum, although it is not considered by many a direct action upon the (agricultural) curriculum. Many of the ideas proposed to internationalize the campus environment involved increasing diversity and international human capacity on campus (more international and internationalized faculty, undergraduate and graduate students, post-docs, visiting scientists, exchange scholars) and structures to help them integrate (including socially) with our traditional students. These ideas were linked in many cases with some of the infusion proposals. Other suggestions to internationalize the campus environment included campus-wide seminars and conferences on international issues, social events, film festivals, and expositions of “photographs from around the world related to agriculture in the atriums of departments.”

For some, the choice was not among strategies, but between quality and depth of specific programs, and expressed the need for an effort to “control the quality and educational experience” of internationalization programs. Along these lines, as an idea to improve the quality of study abroad programs, one of the interviewees suggested that all study abroad trips should include a pre-trip preparatory training in cultural awareness, and that a reflective journal with daily entries should be required in all cases. According to some respondents, the difference between the strategies was not which one was more or less efficient, but who was responsible for its planning and implementation (faculty, administration, college or central offices, etc.) Some respondents indicated that all strategies were necessary and important, and as one respondent said: “There is not one effective way, as any way will be effective in a cumulative synergistic manner.”

Finally, according to some respondents, while internationalization of students is critical, “[it] is not bound up in a course or curriculum, it is a mind-set,” and “[it] does not need to be related at all to their college curriculum.”

During the interviews, in an effort to understand better the rankings of the academic program strategies and some of the numbers that did not appear too clear, the researcher showed the interviewees a graphical summary of the preliminary results of the quantitative analysis of the survey and asked them if they were surprised by the numbers and rankings, and how would they explain some of the results.

One of the results from the quantitative section of the questionnaire that most surprised the researcher was the comparatively high rating received by both A5 Short SA and A6 Cohort, and, most specifically, the fact that the mean of A7 Exchange was not significantly higher than the mean of the other mobility strategies. When unitizing the responses of the open-ended questions, the researcher was also surprised to see how often short-term study abroad was mentioned, as opposed to semester-long exchange programs or mobility programs in a broad sense. The main reason why the researcher was surprised by these results was because prior to her study, when talking with faculty in CAES, the researcher had always heard praises of semester-long exchange programs (highest benefit to students and low resource investment from university’s perspective) while criticisms of both short-term study abroad programs and cohort semester abroad programs were abundant. The most common criticisms for short-term study abroad, for example, were the relatively high cost per day compared to exchange programs, the high faculty time and economic investment from the university’s perspective, and the image to some that short-term study abroad programs were just paid vacations for both students and faculty, with no real technical content or cultural immersion, or even benefits. These criticisms were also present in many of the open-ended responses of the questionnaire with comments such as: “Students should spend significant time abroad in an international environment, not just a short vacation-tour for faculty and students,” or “short-term study abroad, really, does not do it.” The most avid critics to short-term study abroad argued that the reason why short-term study abroad programs are supported at the university level is not because of its benefits to students, but because it is the fastest and easiest way to accomplish

internationalization numbers: “Internationalization should not be viewed as a way to reach high study abroad numbers that in reality mean nothing,” and “a one-sided view from part of the administration, they will give money and time for vacation tours that help make numbers, but won’t even consider looking at . . . [other] programs.” In spite of all these criticisms, however, and, as mentioned before, short-term study abroad was the single most cited strategy in the answers to the open-ended questions.

Most of the interviewees also agreed that they considered long-term exchange programs to be “best uses of our resources” with higher benefits to students. A few of them indicated, however, that, when answering the questionnaire, they had rated short-term study abroad as highly as exchange programs because:

1. It is difficult to get a student to participate in a semester-long exchange program, sometimes because of the time investment it represents, sometimes because of the student’s or his/her family’s anxiety, sometimes because of lack of enthusiasm or basic knowledge about it: “Students do not understand the value of an international experience before they go, therefore, many of them have difficulty planning for a semester abroad when they schedule courses.” On the other hand, it is much simpler to get them to participate in a short-term study abroad because time investment is much shorter and credit accumulation is higher in proportion, the anxiousness diminishes because the student does not travel alone but with other students and faculty from his/her own university, and because at a first glance, study abroad programs are much more attractive and alluring;
2. Short-term study abroad is one of the best ways to get students interested in longer international experiences; often, students participating in short-term programs are the ones who will be motivated to search for semester-long exchange programs;
3. Students in our college start hearing about international opportunities in their last two years at the university, when it is too late for them to spend a whole semester abroad without delaying their graduation (CAES and departmental curriculum is not very flexible, students have many departmental requirements and few electives, and it is often difficult to match departmental curricula at a foreign university). One of the survey respondents summarized very well this justification: “Perception or reality . . . it increases graduation time for students;”

4. In general, interesting exchange opportunities require knowledge of a second language, which makes them unavailable to many CAES students: “We don’t require our students to study a foreign language, we do not have a large pool of students to send to other countries under an exchange program.” However, in most cases, short-term study abroad programs don’t require a second language, which makes them a good alternative to exchange programs.

There were also cases in which faculty rated short-term study abroad poorly. For example, in one of the interviews, a respondent indicated that while s/he considered study abroad very important, s/he did not give it a high rating, for it had usually been overemphasized, diverting attention from other important strategies. Another respondent indicated that although s/he considered short-term study abroad to be valuable, s/he would not recommend offering any more study abroad courses in the college, for, at the moment, there was more offer than demand, and the few existing study abroad courses were competing against each other for their survival (student numbers and financial support). A survey respondent went even further with his/her comments about this issue: “[Study abroad] development by faculty and administrators without close collaboration or feedback from students has been a big mistake. Stretching the scant resources in CAES too thin, by a rush to develop large numbers of poorly designed opportunities has hurt the few credible programs that exist.”

5. INSTITUTIONAL STRATEGIES TO SUPPORT FACULTY IN THEIR EFFORTS TO INTERNATIONALIZE THE UNDERGRADUATE AGRICULTURAL CURRICULUM

The fifth research question reads: How do the faculty in selected colleges of agriculture evaluate and prioritize different institutional strategies to support their efforts to internationalize the curriculum?

As discussed in the previous section, even if one considers that internationalization should be a multifaceted effort, and only views individual strategies as small parts of a larger, integrated endeavor, eventually the time must come to look at specific strategies. Because not all approaches may be adequate in all cases, and resources are invariably finite, it is important to assess each choice according to the individual institution and faculty members who are going to be asked to be active participants in the process.

This section presents and analyzes the responses of faculty to questions concerning the institutional strategies to support them in their internationalization efforts.

Faculty responding to the survey were asked to indicate how much the strategies on the list could support them in their efforts to internationalize the courses and programs for which they were responsible. The strategies listed were the following: 1) Release time from teaching (or other duties) to internationalize curriculum (I1 Time), 2) Collaboration with other faculty members (I2 Collaboration), 3) Including participation in internationalization efforts in evaluation process (salary increase, tenure, promotion) (I3 Recognition), 4) Creation of an "internationalization support specialist" position in the college of agriculture (I41 Specialist), 5) Development and availability of internationalized instructional materials to choose from, adapt, and use (I42 Materials), 6) Seminars, workshops to assist faculty in curriculum development and internationalization (I43 Seminars), 7) Funds for participation in international programs, sabbaticals, and other professional development activities (I51 F. sabbaticals), 8) Funds to support curriculum development and internationalization for on-campus courses (infuse, into subject matter) (I52 F. on-campus), 9) Funds to support curriculum development and internationalization for off-campus courses (study abroad, exchange) (I53 F. off-campus), 10) Funds to support student participation in internationalized programs (I54 F. students), and 11) Support from department, college, and university administrations for the agricultural curriculum (I55 Administrative). The strategies were chosen to parallel the most commonly cited strategies in the literature, as described in Chapter II.

Table 15 presents the means, confidence intervals, and separation of means of faculty ratings of the institutional strategies to support them in their efforts to internationalize the curriculum. Figure 15 shows these data graphically, designed to facilitate the reader's visualization of how the ratings for the different institutional strategies compare with each other.

Table 15

Means, Confidence Intervals, and Separation of Means of Faculty's Ratings of Eleven Institutional Strategies to Support Them in their Curriculum Internationalization Efforts, in Two Colleges of Agriculture, 2003

Variable	*M*	*SE*	95 % Confidence Interval		Separation of means[a]
			Lower	Upper	Bonferroni
I41 Specialist	2.38	0.09292	2.20	2.57	a
I43 Seminars	2.78	0.08553	2.61	2.95	b
I42 Materials	2.86	0.09419	2.67	3.05	b
I2 Collaboration	3.41	0.06874	3.27	3.54	c
I3 Recognition	3.44	0.0939	3.25	3.62	c
I1 Time	3.46	0.09498	3.27	3.65	c
I52 F. on-campus	3.48	0.09092	3.30	3.66	c
I55 Administrative	3.61	0.08948	3.44	3.79	c
I53 F. off-campus	3.71	0.09633	3.52	3.90	c
I54 F. students	4.02	0.07966	3.87	4.18	d
I51 F. sabbaticals	4.18	0.07564	4.03	4.33	d

Note. Listwise *N* = 178.

[a] Means that do not share the same letter in this column differ significantly at $p < .05$, using Bonferroni's adjustment for multiple comparisons.

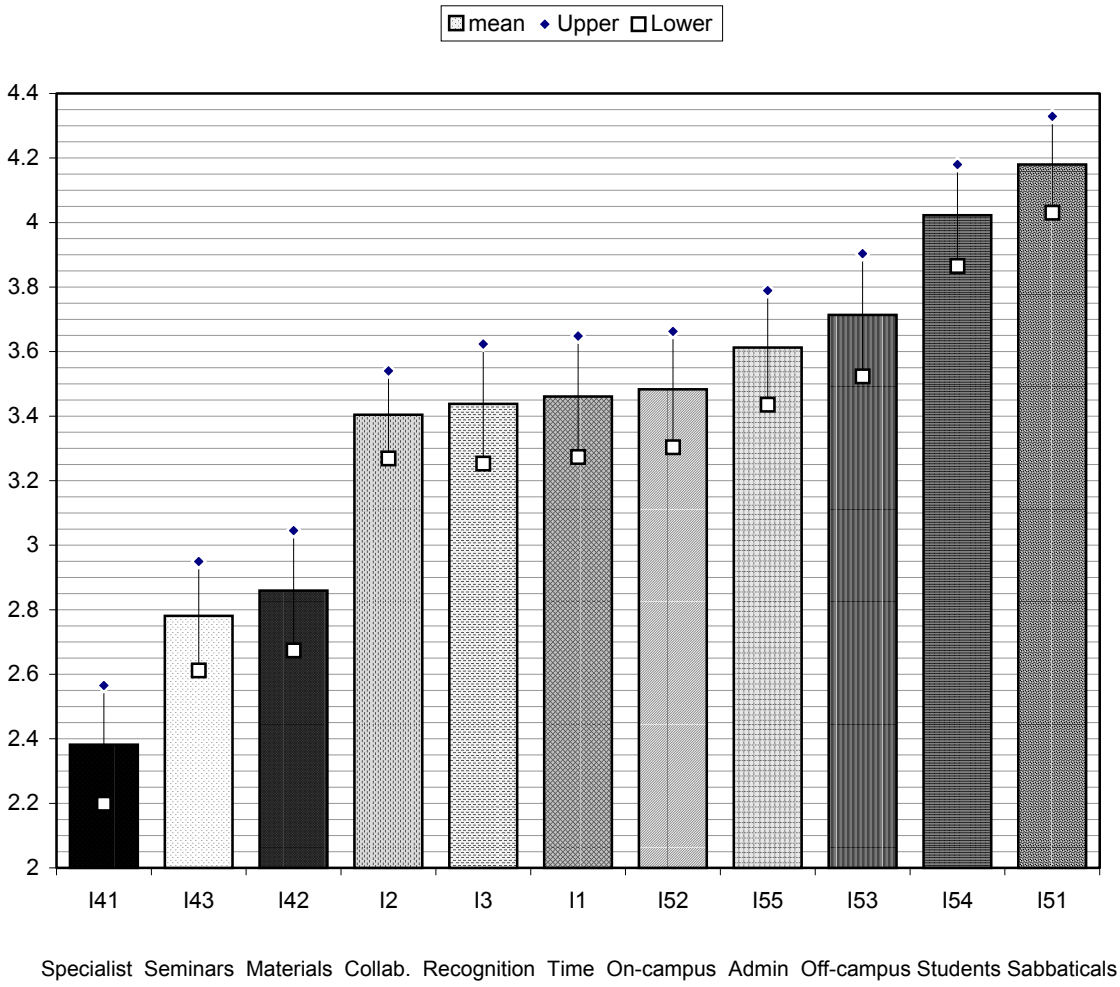


Figure 15. Faculty ratings of eleven institutional strategies to support faculty in their curriculum internationalization efforts in two colleges of agriculture, 2003.

The item and item analysis in this case was more cumbersome and less intuitive than it was in the case of the academic program strategies. In this case, however, it was much more adequate to form constructs, for many of the items were not only conceptually very closely related to each other, but they also were numerically compatible. These constructs grouped the “intellectual support” items together (I41 Specialist, I42 Seminars, and I43 Materials), into a new construct, “I4 Intellectual.” The Cronbach Alpha for the reliability analysis of the I4 Intellectual construct was .7708.

Also, all of the “funds” items were grouped together (I51 F. Sabbaticals, I52 F. on-campus, I53 F. off-campus, and I54 F. students) into construct “I5 Funds.” The Cronbach Alpha for the reliability analysis of the I5 Funds construct was .8386. The constructs I1 Time, I2 Collaboration, and I3 Recognition were left as they initially were defined by the individual items. Item I55 Administrative support was not included in any of these groups because, after receiving some comments from a survey respondent, in which s/he indicated that there were different interpretations to the question, a problem with which the researcher agreed after consulting with other colleagues about their own interpretations. The question stated: “More support from the department, college, and university administrations for internationalization of the **agricultural** curriculum.” The respondent did not understand if the question was focusing on the tangible support referred to in other questions (funds, recognition, release time), or if it referred to support in the form of leadership, vision, and guidance. In addition, the respondent wanted to know if the emphasis was on the term ‘internationalization’ or the term ‘agricultural’. Each of the colleagues from whom the researcher asked for advice happened to interpret the question differently (some thought it meant funds, others interpreted guidance; some noticed that agricultural was bolded, and others did not even notice the word agricultural in the sentence). Unfortunately, this problem had neither been detected during the pilot study, nor was it foreseen by the panel of experts that reviewed the questionnaire during its development.

The means, standard errors, confidence intervals, and separation of means for these new constructs (I4 Intellectual and I5 Funds) are shown in Table 16. One may notice that the values for I1 Time, I2 Collaboration, and I3 Recognition are not equal to the ones shown in Table 15, and this is due to the different listwise *N* (178 in table 15, and 186 in table 16).

Table 16

Means, Confidence Intervals, and Separation of Means of Faculty Ratings of Five Institutional Strategies (Constructs) to Support Faculty in the Internationalization of the Undergraduate Curriculum, in Two Colleges of Agriculture, 2003

			95% Confidence Interval		Separation of means[a]
Variable	*M*	*SE*	Lower	Upper	Bonferroni
I4 Intellectual	2.69	0.07328	2.55	2.84	a
I2 Collaboration	3.43	0.06678	3.29	3.56	b
I3 Recognition	3.44	0.09178	3.26	3.62	b
I1 Time	3.45	0.09369	3.27	3.64	b
I5 Funds	3.84	0.06892	3.71	3.98	c

Note. Listwise *N* = 186.

[a] Means that do not share same letter in this column differ significantly at $p < .05$, using Bonferroni's adjustment for multiple comparisons.

Just as was the case with academic program strategies, it was important to see if there were groups of strategies that were more correlated with each other than with other ones. From Table 17, one can see that "differential" preferences for institutional strategies by individual faculty were not nearly so strong as they had been with academic program strategies. All of the institutional strategies were highly and significantly correlated with each other.

Table 17

Correlations Between Faculty Ratings of Institutional Strategies to Support Faculty in the Internationalization of the Undergraduate Curriculum, in Two Colleges of Agriculture, 2003

Variable	Corr.	I2	I3	I4	I5
I1 Time	*r*	.359**	.402**	.413**	.605**
	sig.	.000	.000	.000	.000
I2 Collaboration	*r*	--	.266**	.414**	.404**
	sig.		.000	.000	.000
I3 Recognition	*r*		--	.353**	.575**
	sig.				.000
I4 Intellectual	*r*			--	.456**
	sig.				.000

Note. Listwise *N* = 186.

** Correlation is significant at the .01 level (2-tailed).

Finally, for comparison and correlation analyses, it was of interest to have all variables corresponding to the different institutional strategies under the same construct. Consequently, a new variable, I6 Institutional, was constructed from the eleven institutional strategies. The Cronbach Alpha for the reliability analysis of this construct was .8833, the minimum value was 1.00, maximum value 5.00, mean 3.4004, and standard deviation 0.79398 (*N* = 188).

In addition to the quantitative data, the researcher had qualitative data describing faculty preferences regarding institutional strategies to support them in their internationalization efforts. In both the interviews and the open-ended questions from the questionnaire, the respondents were asked about the most attractive incentives for them to participate in the internationalization of the curriculum.

Not all respondents answered the question directly; for example, some of them gave ideas to support the internationalization of the university in general, and indicated that it would be interesting to hire more international and internationalized faculty, while others indicated that provisions had to be established so that *all* faculty had the opportunity to participate in learning, travel, and international experiences. Other faculty indicated that they did not need any incentives because they were already doing internationalization, and others indicated that personal satisfaction and the feeling that they were doing what was best for the student's education were the most attractive incentives for them. Along these lines, some respondents commented that it would most help them to see a cultural change at the university and college level (faculty and administrators), and that it would encourage and motivate them further to see increased student interest, understanding, and enthusiasm for participation in international opportunities and experiences.

Among answers mentioning specific institutional strategies to support internationalization, the most frequent involved 1) funds, 2) recognition, and 3) time, presented all together or separately.

1. Answers involving funds of some kind were the most common. Often, the answer was simply funds, with no strings attached ("the most attractive is always financial"). On other occasions, respondents specified the types of funds, which included, but were not limited to, funds to cover salary increases, sabbaticals, costs for traveling abroad to update knowledge and contacts, costs to attend conferences and meetings, or costs to prepare and participate in study abroad programs. Another frequent answer included funds to subsidize student participation in mobility programs, and funds to recruit international graduate students;
2. For many, recognition (in tenure, promotion, and salary increase evaluation processes) was the most attractive incentive. Often, respondents indicated that, to date, "real" recognition, "beyond lip service," was practically non-existent, with some respondents venturing to say that not only was there little encouragement, but "disincentives [that] restrain junior faculty from participation, in their own self interest," that "if a young assistant professor gets involved in international work, it will only hurt him/her in getting promotion-tenure," and that "this . . . university . . .

penalizes such behavior." Another point made by some respondents concerning recognition was that "all internationalization efforts [should] count toward tenure and promotion, not just the ones that give numbers [i.e., short-term study abroad programs];"

3. Release time from other responsibilities as an incentive was mentioned by many respondents and interviewees. Common comments were similar to the ones made by a couple of survey respondents: "Most faculty are already stretched too thin," and "can't please everybody [with the time we have]."

There were many other types of incentives mentioned by small numbers of respondents. Some of these responses pointed to the need for increased leadership and direction in the internationalization process and asked for more organization, directives, focus, and common goals and objectives, and for administrators to champion the process by example and with ideas and vision. Many respondents also mentioned faculty collaboration, working with a group of faculty on joint projects, and the possibility of working hand-in-hand with more experienced faculty (mentors) as necessary process components for them to participate in internationalization efforts. According to one of the interviewees, collaboration, and support with and from colleagues, was a necessary ingredient for a sustainable, diverse, and balanced internationalization.

Other responses could be grouped under the heading "intellectual support" strategies. Some of the ideas suggested included: A system to help faculty translate their international knowledge into internationalization of the curriculum, examples and testimonials of successful curriculum integration efforts, increased availability of teaching tools and information, availability of pre-packaged instructional materials that could be adapted to various purposes, and faculty professional development programs, training, seminars, or workshops dealing with internationalization issues. Other suggestions that could be grouped under the same heading included the provision of specialized support personnel: Hiring an internationalization (curriculum) specialist for the CAES, teaching assistants, and technical support staff. Finally, other respondents indicated that having administrative support staff would also be a good incentive, for it would free them of all the time spent in the legal paperwork and travel arrangements necessary before a study abroad trip. The researcher was surprised, however, of the

low number of faculty mentioning “intellectual support” strategies. According to the literature (Lunde, 1995a, p. 24; see also ACE, 1996; Boyer, 1987, 1990; Cogan, 1998; Graham, 1998; Lunde, 1995b; Nelson, 1996), these are necessary strategies for any successful curriculum revitalization program, including the internationalization of the curriculum.

Other strategies include services provided by central university offices (e.g., Office of International Education), that are essential to solve many important organizational issues related to mobility strategies and international student needs (e.g., visas). These were not included in the questionnaire because they are at the moment provided by central university offices (i.e., Office of International Education), and this research focused more on issues directly affecting the agricultural curriculum and the faculty of colleges of agriculture.

6. COMPARING UGA AND TAMU RESULTS

The sixth research question inquired whether there were significant differences between the results obtained at the two institutions surveyed.

The difference between institutions in terms of demographic characteristics was discussed in section 1 of this chapter, where it was shown that there was asymmetric gender representation (D1 Gender), with females being under-represented at UGA, and the percentage of time spent teaching (D7G % time teaching) being higher at TAMU.

In this section, the researcher concentrates on analyzing whether there were differences between institutions concerning the variables directly related to the internationalization of the undergraduate agricultural curriculum. It is important to keep in mind the results of the differences between institutions for the demographic characteristics. In the event of a significant difference between institutions for a specific construct, it is important to differentiate between truly inherent differences between the institutions, i.e., a difference in the environment and culture towards internationalization, or differences that may be explicable by the demographics of the faculty responding to the questionnaire (which could be explored doing an analysis of covariance, or ANCOVA).

In order to test whether or not there were significant differences between institutions concerning the survey variables, the researcher used a series of multivariate analyses of variance (MANOVA), one for each group of variables (vectors), that is, 1) Vector K , knowledge of and participation in international and internationalization activities, 2) Vector S, priorities for the curriculum, or faculty perspectives about the interest in emphasizing a set of skills, competencies, and experiences in the undergraduate agricultural curriculum, 3) Vector T, relevance and status of internationalization of the curriculum and need for further internationalization, 4) Vector A, academic program strategies for the internationalization of the curriculum, and 5) Vector I, institutional strategies to support faculty in their efforts to internationalize the curriculum.

To test the statistical significance of the difference between group centroids, the researcher used Wilks' lambda. If the test yields a significant Wilks' lambda, then to determine which of the variables has significantly different value between the two institutions, the researcher will do a *t*-test for each of the dependent variables of the group. The researcher followed this procedure instead of doing directly a *t*-test for each of the variables of the study in order to reduce the risk of obtaining a "false" significant difference (Type I error) (Gall, Borg, & Gall, 1996).

6.1. Knowledge of and participation in international and internationalization activities

Table 18 shows the results of the multiple analysis of variance of Vector K, knowledge of and participation in international and internationalization activities, by institution.

Given the non-significant value of Wilks' lambda, it was not necessary to perform *t*-tests for each one of the "K variables" (knowledge and participation) to see which one had a different pattern than the rest. Concomitantly, one can say that there was no evidence of difference between institutions concerning the respondents' knowledge of and participation in international and internationalization activities. In this case, however, because the researcher had decided to group all the knowledge and participation variables into a single construct, K5 Int know/part, as explained in a prior section of this chapter, it probably would have been better just to perform directly a *t*-

test for equality of means of K5 Int know/part between the two institutions. The *t*-test in question still yielded a non significant result (*t* = -.800, df = 189, sig. = .425), further validating the conclusion that there was no evidence of difference between institutions concerning the respondents' knowledge of and participation in international and internationalization activities.

Table 18

Multiple Analysis of Variance: Vector K[a], "Knowledge of and Participation in International and Internationalization Activities," by Institution

Test	Value	F	Hyp. df	Error df	Sig.
Wilks' lambda	.981	1.196	3	185	.313

[a]The variables in the Vector are K1 Int (gen) know, K2 Int (gen) part, K3 Curr int know, and K4 Curr int part.

6.2. Priorities for the curriculum, relevance and status of the curriculum, and need for further internationalization

Table 19 shows the results of the multiple analysis of variance of Vector S, faculty priorities for the undergraduate agricultural curriculum, by institution.

Table 19

Multiple Analysis of Variance: Vector S[a], "Priorities for the undergraduate agricultural curriculum," by Institution

Test	Value	F	Hyp. df	Error df	Sig.
Wilks' lambda	.938	1.992	6	181	.069

[a]The variables in the Vector are S1 Interpersonal, S2 Analytical, S3 Communication, S4 Technical, S5 International, S6 Computer, and S7 Experience.

In this case, the value of Wilks' lambda is not significant at the $p < .05$ level, which means that there are no expected differences between institutions concerning the respondents' preferences among some of the listed priorities, competencies, and/or experiences.

Table 20 shows the results of the multiple analysis of variance of Vector T, relevance and status of internationalization, and need for further internationalization, by Institution.

Table 20

Multiple Analysis of Variance: Vector T[a]*, "Relevance and Status of Internationalization and Need for Further Internationalization," by Institution*

Test	Value	F	Hyp. df	Error df	Sig.
Wilks' lambda	.993	.611	2	182	.544

[a]The variables in the Vector are T1 Relevance, T2 Status, and T3 Need.

Given the non-significant value of Wilks' lambda, it is not necessary to perform *t*-tests for each one of the "T variables" (relevance, status, and need of and for further internationalization). There is no evidence of difference between institutions concerning the respondents' perception of relevance, status, and need of and for internationalization.

6.3. Academic program strategies for the internationalization of the undergraduate agricultural curriculum

Table 21 shows the results of the multiple analysis of variance of Vector A, academic program strategies for the internationalization of the curriculum, by institution.

Given the non-significant value of Wilks' lambda, it was not necessary to perform *t*-tests for each one of the "A variables" (academic program strategies). There was no evidence of difference between institutions concerning the respondents' preferences

among the different academic program strategies for the internationalization of the undergraduate agricultural curriculum.

Table 21

Multiple Analysis of Variance: Vector A[a]*, "Academic Program Strategies for the Internationalization of the Curriculum," by Institution*

Test	Value	F	Hyp. df	Error df	Sig.
Wilks' lambda	.952	1.212	7	168	.299

[a]The variables in the Vector are A1 Infusion, A2 On-campus, A3 Virtual, A4 Concentrations, A5 Short SA, A6 Cohort, A7 Exchange, and A8 Environment.

In addition, if we simply compare the variable A10 Academic (all the academic program strategies in a single construct) between UGA and TAMU with a *t*-test for equality of means, the difference is also non-significant (t = -0.443, df = 187, sig. = .658, mean dif. = -0.0338, *SE* dif. = 0.0763), which further supports the notion that there are no differences between UGA and TAMU concerning faculty ratings of the academic program strategies. One of the advantages of following the multiple analysis of variance procedure instead of directly doing this t-test, is that with the results of the MANOVA one is also able to detect differential preferences for specific strategies among institutions, if any, while the analysis with the "global" A10 Academic construct would not provide this information (A10 is a "unidimensional" variable, representing a mean of all strategies, while Vector A preserves the individual characteristics of each variable by putting them together in an eight-dimensional-spatial representation).

6.4. Institutional strategies to support faculty in their efforts to internationalize the undergraduate agricultural curriculum

Table 22 shows the results of the multiple analysis of variance of Vector I, institutional strategies to support faculty in their efforts to internationalize the curriculum, by institution.

Table 22

Multiple Analysis of Variance: Vector I[a]*, "Institutional Strategies to Support Faculty in their Efforts to Internationalize the Curriculum," by Institution*

Test	Value	F	Hyp. df	Error df	Sig.
Wilks' lambda	.936	3.080	4	181	.017

[a]The variables in the Vector are I1 Time, I2 Collaboration, I3 Recognition, I4 Intellectual, and I5 Funds.

In the multiple analysis of variance of Vector I (Institutional strategies) by institution, Wilks' lambda yielded a significant value, which meant that there were expected significant differences between institutions for at least one of the variables in Vector I (institutional strategies to support faculty in their efforts to internationalize the curriculum). To determine which variables had different patterns than the rest, it was now appropriate to perform a series of two tailed *t*-tests.

Table 23 shows the means and standard deviations of the I variables by institution, and Table 24 is a *t*-test for equality of means between institutions. Because of the differences between number of respondents and response rate between the two institutions, it would not be appropriate in this *t*-test to assume directly equality of variances between institutions. Concomitantly, Table 24 is structured with table spanners to show the results of the test assuming both equal variances and not assuming them.

Table 23

Means, Separation of Means, and Standard Deviations of the I Variables (Institutional Strategies to Support Faculty in their Internationalization Efforts), by Institution

Variable	*M*	*SD*	Sep. of means Bonferroni[a]		
	UGA (*N* = 109)				
I1 Time	3.266	0.127		b	
I2 Collaboration	3.349	0.087		b	
I3 Recognition	3.404	0.120		b	
I4 Intellectual	2.749	0.098	a		
I5 Funds	3.810	0.095			c
	TAMU (*N* = 77)				
I1 Time	3.714	0.132		b	
I2 Collaboration	3.532	0.104		b	
I3 Recognition	3.494	0.143		b	
I4 Intellectual	2.610	0.110	a		
I5 Funds	3.886	0.099			c

[a] Means that do not share same letter in this column differ significantly at $p < .05$, using Bonferroni's adjustment for multiple comparisons.

Tables 23 and 24 show that there are significant differences between institutions for only I1 Time, the variable representing the institutional strategy that would give to faculty release time from teaching (or other duties) to internationalize the curriculum, with faculty at TAMU valuing the strategy more than the faculty at UGA. Conceptually, one could imagine that this difference could be due to the fact that faculty at TAMU are teaching a higher percentage of their time than the faculty at UGA, but, as will be shown in the next section of this discussion, there were no significant differences between

faculty in different categories of percentage of time teaching in regard of the value they give to the different institutional strategies, including I1 Time.

In summary, it has been shown that apart from the differences in the demographic characteristics of the respondents of the two institutions, the only other significant difference between institutions detected was in the value given to the institutional strategy I1 Time, a strategy that proposes to give faculty release time from teaching (or other duties) so they can internationalize their curriculum. By looking at the means, one can see that UGA ranks I1 Time as the fourth strategy, while TAMU ranks it second. This difference, however, is less noteworthy than one would first assume because in a more in-depth analysis, if one conducts a Bonferroni pairwise comparison of mean differences, in both cases I1 Time belong to the second (middle) group of significantly different groups of strategies, and, in both cases, I1 Time is significantly more highly valued than I4 Intellectual, significantly less highly valued than I5 Funds, but “equally” valued as I2 Collaboration and I3 Recognition.

Note that if instead of following this procedure one had simply compared the variable I6 Institutional (all the institutional program strategies in a single construct) between UGA and TAMU with a *t*-test for equality of means, (*t* = -0.283, df = 186, sig. = .778, mean dif. = -0.0333, *SE* dif. = 0.11782), one would have concluded that there were no significant differences between UGA and TAMU concerning faculty ratings of the institutional strategies, and would not have explored the possibility of differential preferences (rankings and means of individual strategies) among UGA and TAMU.

7. RELATIONSHIP BETWEEN GROUPS OF VARIABLES

The seventh research question of the study states: How do demographics, self-perceived level of international and internationalization expertise and participation, priorities given to curriculum, and perceptions toward different academic program and institutional strategies for internationalization relate to one another? In this section, these relationships will be explored.

Table 24

T-Test for Equality of Means, by Institution, of the I Variables (Institutional Strategies to Support Faculty in their Internationalization Efforts)

	Levene's Test for Equality of Variances		t-test for Equality of Means				
Var.	F	Sig.	t	df	Sig.	Mean dif.	*SE* Difference
			Equal variances assumed				
I1	1.751	.187	-2.487	186	.014	-0.46*	0.186
I2	.000	.997	-1.276	186	.204	-0.17	0.134
I3	.022	.882	-0.481	184	.631	-0.09	0.187
I4	.219	.640	0.802	186	.423	0.1190	0.148
I5	1.705	.193	-0.455	186	.649	-0.0634	0.139
			Equal variances not assumed				
I1			-2.550	178.766	.012	-0.46*	0.182
I2			-1.275	165.600	.204	-0.17	0.134
I3			-0.481	164.018	.631	-0.09	0.187
I4			0.808	169.996	.420	0.12	0.147
I5			-0.466	178.198	.642	-0.06	0.136

*$p < .05$.

7.1. Associations with demographic variables

In this section, the researcher explores whether there are significant associations between demographic characteristics and variables directly concerning the internationalization of the curriculum. The variables under study in this case are: 1)

Knowledge of and participation in international and internationalization activities, 2) priorities for the curriculum, 3) relevance and status of internationalization of the curriculum and need for further internationalization, 4) academic program strategies for the internationalization of the curriculum, and 5) institutional strategies to support faculty in their efforts to internationalize the curriculum.

To this end, the researcher used a rationale similar to the one used to analyze if there were differences in the results between the two institutions. First, the researcher performed a series of multivariate analysis of variance (MANOVA), one for each group of variables (vectors) with selected demographic variables (D1 Gender, D2G Years UGA/TAMU, D5 Rank, D6 Dept type, D7G % time teaching, D8 Responsibilities), testing the statistical significance of the difference between group centroids with Wilks' lambda. If the test yielded a significant Wilks' lambda, then the researcher performed additional tests to determine which of the variables had a different pattern than the rest, and had significantly different values between the different categories of the demographic characteristic under study. The demographic variables D3G Years HE and D4 Tenure were excluded from this exploration because the researcher considered that, given their high association with D2G Years UGA/TAMU and D5 Rank, they would add little information to the discussion. For group of "K" variables, representing the knowledge of and participation in international and internationalization activities, the researcher did not use this methodology, for it was better to directly use the K5 Int know/part construct, representing all the K variables together. The rationale for using K5 Int know/part construct instead of K1 Int (gen) know, K2 Int (gen) part, K3 Curr int know, and K4 Curr int part was given in section 2 of this chapter.

Table 25 shows the general linear model univariate tests for the effects of demographic characteristics on dependent variable K5 Int know/part. The only significant F was the one for D2G Years UGA/TAMU, the demographic variable that categorizes faculty according to the number of years they have been working at UGA or at TAMU.

Table 25

General Linear Model Univariate Tests for the Effects of Demographic Characteristics on Dependent Variable K5 Int know/part

Demographic characteristic		Sum of Squares	df	F	Sig.
D1 Gender	Contrast	1.025	1	1.633	.203
	Error	117.363	187		
D2G Years UGA/TAMU	Contrast	5.851	2	4.863**	.009
	Error	111.900	186		
D5 Rank	Contrast	3.619	3	1.950	.123
	Error	114.467	185		
D6G Dept type	Contrast	0.546	1	0.882	.349
	Error	112.646	182		
D7G % time teaching	Contrast	4.742	3	2.530	.059
	Error	94.955	152		
D8 Responsibilities	Contrast	0.530	1	0.847	.359
	Error	118.175	189		

Note. The tests are based on the linearly independent pairwise comparisons among the estimated marginal means.

**$p < .01$.

Table 26 shows the means, confidence intervals, and Bonferroni separation of means of variable K5 Int know/part (international and internationalization knowledge and participation), for the three categories of the demographic variable D2G Years at UGA/TAMU. The table shows that the self-perceived level of knowledge of and participation in international and internationalization activities was significantly higher for faculty members who had been between four and fourteen years at their respective institutions, than for faculty members who had been four or less years, or more than fourteen years at their institutions.

Table 26

Means, 95% Confidence Interval Estimates, and Bonferroni Separation of Means of Dependent Variable K5 Int know/part, for the three Categories of D2G Years UGA/TAMU

Categories			95% Confidence Interval		Separation of means
D2G Years UGA/TAMU	*M*	*SE*	Lower	Upper	Bonferroni[a]
$y \leq 4$	3.233	0.121	2.994	3.471	a
$4 < y \leq 14$	3.724	0.102	3.523	3.925	b
$y > 14$	3.552	0.082	3.390	3.713	a

[a] Means that do not share same letter in this column differ significantly at $p < .05$, using Bonferroni's adjustment for multiple comparisons.

Table 27 show a series of multivariate analysis of variance to explore if there are significant associations between the selected demographic characteristics and the rest of the variables directly concerning the internationalization of the curriculum. The vectors representing these variables are: 1) Vector S, priorities for the curriculum, 2) Vector T, relevance and status of internationalization of the curriculum and need for further internationalization, 3) Vector A, academic program strategies for the internationalization of the curriculum, and 4) Vector I, institutional strategies to support faculty in their efforts to internationalize the curriculum. The multivariate analysis of variance tests, with Wilks' lambda, test the statistical significance of the difference between group centroids (between the different categories of the demographic variables). If the test yields a significant Wilks' lambda, then the researcher will perform additional tests to determine which of the variables has significantly different values between the different categories of the demographic characteristic under study.

Table 27

Multivariate Analysis of Variance for Vectors S Curriculum Priorities, T Relevance and Status, A Academic Strategies, and I Instructional Strategies, by Selected Demographic Characteristics

	Wilks' lambda					
Vector	Value	F	Hyp. df	Error df	Sig.	*N*
			D1 Gender			
S Curriculum priorities	.983	0.531	6	179	.784	186
T Relevance and status	.986	1.314	2	180	.271	183
A Academic strategies	.909	2.386*	7	166	.024	174
I Institutional strategies	.976	1.099	4	179	.359	184
			D2G Years UGA/TAMU			
S Curriculum priorities	.912	1.391	12	356	.168	186
T Relevance and status	.967	1.495	4	358	.203	183
A Academic strategies	.895	1.346	14	332	.178	175
I Institutional strategies	.944	1.292	8	356	.246	184
			D5 Rank			
S Curriculum priorities	.862	1.503	18	501.117	.084	186
T Relevance and status	.980	0.610	6	356	.722	183
A Academic strategies	.878	1.042	21	471.470	.410	174
I Institutional strategies	.912	1.385	12	468.589	.169	184

Table 27 *Continued*

	Wilks' lambda					
Vector	Value	F	Hyp. df	Error df	Sig.	*N*
D6G Dept type						
S Curriculum priorities	.900	3.217**	6	174	.005	181
T Relevance and status	.999	0.068	2	175	.934	178
A Academic strategies	.966	0.820	7	162	.572	170
I Institutional strategies	.984	0.689	4	174	.601	179
D7G % time teaching						
S Curriculum priorities	.804	1.822*	18	407.779	.021	153
T Relevance and status	.899	2.672*	6	292	.015	151
A Academic strategies	.832	1.202	21	382.454	.245	143
I Institutional strategies	.908	1.183	12	383.925	.293	152
D8 Responsibilities						
S Curriculum priorities	.965	1.095	6	181	.367	188
T Relevance and status	.981	1.778	2	182	.172	185
A Academic strategies	.946	1.373	7	168	.220	176
I Institutional strategies	.985	0.691	4	181	.599	186

*$p < .05$. **$p < .01$.

7.1.1. Gender

According to the Wilks' lambda of the multivariate analysis of variance in Table 27, one expects to find significant differences between the ratings of males and females for at least one of the academic program strategies for the internationalization of the curriculum. In the exploration of the significance of the main difference with multiple pairwise comparisons, with Bonferroni's adjustment for multiple comparisons, the only strategy that appears to have a significantly different value between males and females was A1 Infusion (dif. = 0.624, *SE* dif. = 0.167, sig. = .000), with mean of 4.188 for females (*SE* = 0.151, 95% confidence interval lower bound = 3.889, upper bound = 4.486), and a mean of 3.563 for males (*SE* = 0.072, 95% confidence interval lower bound = 3.422, upper bound = 3.705).

A change of mean values, significant or not significant, is not the only thing that changes between genders concerning their preferences for the different academic program strategies. Most importantly, what changes is the order in which these strategies are ranked, and the Bonferroni's groups that appear to be significantly different when ordering these rankings. These differences are shown in Table 28. The most relevant changes in the order of the rankings is that for female faculty the most valued strategy is A1 Infusion, while for male faculty members A1 Infusion is below the three mobility strategies. On the other hand, if one looks at possible differences between genders for the mean of the A10 Academic variable, the independent samples *t*-test yields a non-significant value (*t* = -0.520, sig. = .604, *N* = 185), indicating that there are no expected differences between males and females concerning their ratings of academic program strategies from a general perspective.

Table 28

Means, Confidence Intervals, and Separation of Means of Faculty Ratings of Academic Program Strategies for the Internationalization of the Curriculum, Grouped by Gender

Variable	*M*	*SE*	95 % Confidence Interval		Separation of means[a]
			Lower	Upper	Bonferroni
		Females (*N* = 32)			
A3 Virtual	3.094	0.175	2.748	3.439	a
A2 On- Campus	3.156	0.158	2.845	3.467	a
A4 Concentrations	3.156	0.157	2.847	3.465	a
A8 Environment	3.250	0.182	2.890	3.610	a b
A6 Cohort	3.500	0.170	3.165	3.835	a b
A7 Exchange	3.750	0.156	3.442	4.058	b
A5 Short SA	3.781	0.155	3.475	4.088	b c
A1 Infusion	4.188	0.151	3.889	4.486	c
		Males (*N* = 142)			
A3 Virtual	3.042	0.083	2.878	3.206	a
A2 On-campus	3.063	0.075	2.916	3.211	a
A4 Concentrations	3.099	0.074	2.952	3.245	a
A8 Environment	3.324	0.087	3.153	3.495	b
A1 Infusion	3.563	0.072	3.422	3.705	c
A6 Cohort	3.746	0.081	3.587	3.906	cd
A5 Short SA	3.838	0.074	3.693	3.984	d[e]
A7 Exchange	3.986	0.074	3.840	4.132	e

[a] Means that do not share same letter in this column differ significantly at $p < .05$, using Bonferroni's adjustment for multiple comparisons.

7.1.2. Years worked at UGA/TAMU

The Wilks' lambda of the multivariate analysis of variance in Table 27 was not significant for any of the analyses corresponding to D2G Years UGA/TAMU with vectors S, T, A, and I, which meant that there were no significant differences in patterns within the variables in the four groups.

To explore further the relationship between D2G Years UGA/TAMU and some of the research variables (one per group: T1 Relevance, S5 International, A10 Academic, and I6 Institutional), the researcher performed a series of between-subjects effects (univariate tests), where D2G Years UGA/TAMU was the fixed factor, and the variables under study the dependent variables.

The F for these tests was significant only for D2G Years UGA/TAMU and I6 Institutional (F = 7.050, sig. = .001, *N* = 186). This means that the duration of faculty members' employment at their present institution influenced only their perspective on institutional strategies (as a whole). The I6 Institutional mean for faculty who have been working four or fewer years at UGA/TAMU is 3.489 (*SD* = 0.125), for faculty who have been working more than four but fourteen or less years is 3.664 (*SD* = 0.101), and for faculty who have been working more than fourteen years is 3.187 (*SD* = 0.081). In a pairwise comparison for separation of means with Bonferroni's adjustment for multiple comparisons, the means of I6 Institutional corresponding to ratings of faculty who had been working four or less years, and more than fourteen, are significantly smaller than the means of the ratings for faculty having worked between four and fourteen years.

Because the Wilks' lambda was not significant, it is expected that a similar pattern is followed by the individual institutional strategies. In addition, this pattern is similar to the one found when looking at the relationships between knowledge of and participation in international and internationalization activities, and the years worked at UGA/TAMU. This similarity of patterns points to the need to look also at the relationship between knowledge and participation, and ratings of the institutional strategies, which will be studied in Section 7.2.

7.1.3. Rank and responsibilities

The Wilks' lambda of the multivariate analysis of variance in Table 27 is not significant for any of the analyses corresponding to D5 Rank or D8 Responsibilities which means that there are no expected significant differences in patterns within the variables in the four groups (T, S, A, and I).

To explore further the relationship between D5 Rank and D8 Responsibilities and some of the research variables (one per group: T1 Relevance, S5 International, A10 Academic, and I6 Institutional), the researcher performed a series of between-subjects effects (univariate tests), for D5 Rank and *t*-tests for D8 Responsibilities. None of the tests yielded a significant value.

7.1.4. Department type

According to the Wilks' lambda of the multivariate analysis of variance in Table 27, one expects to find significant differences between the ratings of faculty members in different types of departments (life sciences *vs.* social science) for at least one of the variables representing faculty's priorities for the curriculum (S Vector). In the exploration of the significance of the main difference with multiple pairwise comparisons, with Bonferroni's adjustment for multiple comparisons, the two variables that appear to have a significantly different value between faculty in life sciences departments and faculty in social science departments are: S4 Technical (Technical competency in the major field of study) (df = 182, dif. = .384, *SE* dif. = .110, sig. = .001), and S5 International (International awareness and/or experience) (df = 180, dif. = -0.335, *SE* dif. = 0.159, sig. = .037). The means, standard errors, and 95% confidence intervals for these variables are shown in Table 29.

Different mean values were not the only distinctions between the responses of faculty members belonging to life sciences or social science departments concerning their priorities for the curriculum. The order in which the different skills, competencies, and experiences were ranked was also different, as well as the Bonferroni's significantly different groups obtained when ordering the rankings. These rankings are contrasted in Table 29. The most relevant changes, apart from the differences in means for S5

International and S4 Technical, was that for faculty in social science departments the lowest priority was S6 Computer. This was only second to last for faculty in life sciences departments, who ranked S5 International last. In the case of S4 Technical, for faculty in social science departments, it was ranked fourth, but did not differ significantly from the last 3 variables of the group, while for faculty in life sciences departments, S4 Technical was ranked third, and differed significantly from the last four variables in the group. S1 Interpersonal, although third for faculty in social science departments, it was in the same Bonferroni group as S2 Analytical, first in the ranking. Contrarily, S1 interpersonal, fourth in the ranking for life sciences faculty, was significantly different from the first, second, and third variables of the group. Most of these differences between ratings and rankings made by faculty in the two types of department were intuitive. The only difference that was not foreseen *a priori* was the difference in value assigned to S5 International, which, in any case, however, belonged to the lowest Bonferroni group for faculty in both department types.

The Wilks' lambda of the multivariate analysis of variance in Table 27 was not significant for analysis of the relationship between type of department (social science *vs.* life sciences) and the vectors T Relevance and Status, A Academic strategies, and I Institutional strategies, which meant that differences of patterns within the groups were not expected.

To know the general pattern of the relationship between these variables, the researcher compared the means with an independent samples *t*-test for T1 Relevance, A10 Academic, and I6 Institutional.

The *t*-tests revealed that there were significant differences between faculty in the two types of departments in their perception of T1 Relevance (t = -2.070, df = 182, sig. = .040, mean dif. = -0.2674, *SE* dif. = 0.12919). The perception of relevance for faculty in life sciences departments is lower (M = 3.6516, SD = 0.76322, N = 142) than for faculty in social science department (M = 3.9190, SD = 0.63100, N = 42).

Table 29

Means, Confidence Intervals, and Separation of Means of S Variables (Priorities for the Curriculum), Grouped by Department Type

Variable	*M*	*SE*	95 Confidence Interval Lower	95 Confidence Interval Upper	Separation of means[a] Bonferroni
		Life sciences departments (*N* = 140)			
S5 International	3.250	.076	3.100	3.400	a
S7 Experience	3.621	.070	3.483	3.760	b
S6 Computer	3.714	.062	3.592	3.837	b
S1 Interpersonal	4.029	.069	3.892	4.166	c
S4 Technical	4.336	.053	4.232	4.439	d
S3 Communication	4.371	.062	4.250	4.493	d
S2 Analytical	4.586	.057	4.473	4.698	e
		Social science departments (*N* = 41)			
S6 Computer	3.561	.115	3.335	3.787	a
S5 International	3.585	.140	3.309	3.862	a
S7 Experience	3.732	.129	3.476	3.987	a
S4 Technical	3.951	.097	3.760	4.143	a b
S1 Interpersonal	4.220	.128	3.966	4.473	b c
S3 Communication	4.488	.114	4.263	4.712	c
S2 Analytical	4.634	.105	4.426	4.842	c

[a] Means that do not share same letter in this column differ significantly at $p < .05$, using Bonferroni's adjustment for multiple comparisons.

The *t*-tests also revealed that there were significant differences between faculty in their rating of the academic program strategies: A10 Academic (*t* = -2.642, df = 180, sig. = .009, mean dif. = -0.2352, *SE* dif. = 0.08904). This result means that there are significant differences between faculty's perceptions about the value of the academic program strategies *per se* depending on the type of department in which they are located. Faculty in life sciences departments have significantly less appreciation for the academic program strategies (*M* = 3.3946, *SD* = 0.50172, *N* = 140) than faculty in social science departments (*M* = 3.6298, *SD* = 0.52074, *N* = 42). The fact that Wilks' lambda of the multivariate analysis is not significant means that the same pattern may be expected for all academic program strategies.

The *t*-test does not yield a significant value when comparing the means of I6 Institutional.

7.1.5. Percentage of time spent teaching

Finally, when categorizing faculty respondents depending on the percentage of time spent teaching (D7G % time teaching), according to the Wilks' lambda of the multivariate analysis of variance in Table 27, one expected to find significant differences between the ratings of at least one of the S variables (priorities for the curriculum), and at least one of the T variables (relevance and status).

The respondents were grouped into four categories depending on the time spent teaching (less than 30%, 30% to 45%, 45% to 60%, and more than 60%). In the multiple pairwise comparisons, with Bonferroni's adjustment for multiple comparisons, the only S variable that appeared to have a significantly different value between faculty in different percent of teaching categories is S2 Analytical (problem solving, critical thinking, and analytical skills). The significant difference was between faculty teaching 30% to 45% (*M* = 4.244, *SE* = 0.155, 95% confidence interval lower bound = 3.930, upper bound = 4.558), compared to faculty teaching more than 45% but less or equal than 60% (*M* = 4.825, *SE* = 0.079, 95% confidence interval lower bound = 4.665, upper bound = 4.985). The difference between the means was 0.581, the standard error of the difference was 0.159, and the significance of Bonferroni's separation of means was

.002. Despite this significant difference, however, the variable S2 Analytical was still ranked the highest in both cases.

The other Wilks' lambda that yielded a significant value when exploring differences between categories of faculty spending different percentages of their time teaching, was the one that tested the T variables (relevance and status). When exploring which of the variables (T1 Relevance, T2 Status, or T3 Need) could have a different pattern than the rest, the tests indicated that none of them showed significant differences between time categories, which all of them had a similar pattern. According to Gall, Borg, and Gall (1996), "although unlikely, it is possible to obtain a significant MANOVA *F* without finding a significant *F* [or *t*] in any of the" latter tests (p. 396). This appears to be the case in this instance.

The tests of between subjects effects for (univariate analysis of variance) for A10 Academic and I6 Institutional with D7G % time teaching yielded in both cases non significant Fs.

7.2. Associations with knowledge of and participation in international and internationalization activities

In this section, the researcher explores whether there are significant associations between the variable defining knowledge of and participation in international and internationalization activities (K5 Int know/part) and the following groups of variables: 1) Relevance and status of internationalization of the curriculum and need for further internationalization (T variables), 2) academic program strategies for the internationalization of the curriculum (A variables), and 3) institutional strategies to support faculty in their efforts to internationalize the curriculum (I variables). The first step in the analysis is to calculate the value and significance of Wilks' lambda for the corresponding multivariate analyses of variance, for the same reasons discussed in prior sections. The results summarizing these multivariate analyses of variance are shown in Table 30.

Table 30

Multivariate Analysis of Variance for Vectors T Relevance and Status, A Academic Strategies, and I Instructional Strategies, by Knowledge of and Participation in International and Internationalization Activities (K5 Int know/part)

		Wilks' lambda				
Vector	Value	F	Hyp. df	Error df	Sig.	*N*
T Relevance & status	.663	2.089**	36.000	330.000	.000	185
A Academic strategies	.488	0.917	126.000	1001.915	.727	176
I Institutional strategies	.536	1.544**	72.000	647.248	.004	186

**$p < .01$.

According to Wilks' lambda of the multivariate analysis of variance in Table 30, one expects to find significant differences between the different levels of knowledge of and participation in international and internationalization activities for at least one of the T Relevance and status variables. To explore how knowledge and participation is related to the relevance and status variables, the researcher conducted a series of curve estimations, finding that in two of the pairs a linear regression was the best fit.

Table 31 shows parameter estimates of the linear regressions of knowledge and participation with the variables quantifying relevance, status, and need of and for internationalization, that help to understand better the relationships between these variables. One can see that the perception of relevance of internationalization increases with increasing level of knowledge and participation. This is, in part, intuitive, and it could be viewed from both cause and effect perspectives: 1) The more one knows of and participates in international and internationalization activities, the more important and relevant these become, and 2) the more relevant these are from one's point of view, the higher the motivation and effort to expand knowledge and increase participation. From a practical perspective, if one wants to increase faculty participation in internationalization activities, one strategy that could help is addressing issues of perception of relevance (e.g., hold a workshop for faculty to discuss why

internationalization is important and address misconceptions about the process, such as, for example, why internationalization does not necessarily compete with other educational purposes and objectives). An easier and cheaper way would be to incorporate this factor into hiring decisions so as to build a population of faculty who are naturally predisposed to participation in internationalization activities, as was suggested by some of the survey respondents in the answers to the open-ended questions, and in the literature (AIEA, 1995b; Backman, 1993; Ellingboe, 1997a; EUOIA, 1995).

Table 31 also shows that there is not a significant correlation between level of knowledge and participation and the perception of the present status of internationalization. This could, in principle, be intuitive. Still, one could argue that faculty with higher levels of knowledge and participation would tend to be more critical of what has been attained so far. One could also argue, however, that these faculty would also be more aware and know more about what is being done at their colleges and be more positive about the levels attained so far. On the other hand, and just as it was discussed in section 3.2, when discussing the linear positive and significant relationship between T1 Relevance and T3 Need for further internationalization, it is intuitive that level of knowledge of and participation in international and internationalization activities would be positively correlated with the perception of need for further internationalization; the more one knows and participates, the further one thinks that internationalization should go. These results best support the process approach to internationalization (de Wit, 1995, 2002; Ellingboe, 1997a, 1997b; Fortin, 2001; Groennings & Wiley, 1990; Harari, 1989, 1992; Klasek, 1992a; Knight, 1997a; Lambert, 1989; Mestenhauser, 1998; Tonkin & Edwards, 1981), and, yet again, they could be interpreted from both a cause and effect perspective.

The Wilks' lambda of the multivariate analysis of variance for vector A (academic strategies) by K5 Int know/part was not significant, and this is an indication that one should expect to find differences in preferences for one or another strategy depending on the level of knowledge and participation. In fact, if one looks at the linear regressions and correlations between the ratings of the academic program strategies and knowledge and participation in Table 32, one sees that although most of the regressions are significant (all of them except for the ones with A3 Virtual and A4

Concentrations), one cannot find significant differences between any of the regressions (all of the 95% confidence intervals overlap).

Table 31

Parameter Estimates of Linear Regressions of Knowledge of and Participation in International and Internationalization Activities (K5 Int know/part) with Faculty Perception of Relevance of Curriculum Internationalization (T1 Relevance), Status of Curriculum Internationalization (T2 Status), and Need for Further Curriculum Internationalization (T3 Need)

		Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.	Lower Bound	Upper Bound
T1 Relevance	Intercept	1.799**	.204		.000	1.396	2.202
	Slope	0.542**	.056	.581**	.000	0.431	0.653
T2 Status	Intercept	3.092**	.325		.000	2.451	3.732
	Slope	-0.052	.089	-.043	.557	-0.228	0.123
T3 Need	Intercept	2.039**	.330		.000	1.387	2.691
	Slope	0.587**	.091	.431**	.000	0.408	0.766

Listwise $N = 185$.

*$p < .05$. **$p < .01$.

Table 32

Parameter Estimates of Linear Regressions of Knowledge of and Participation in International and Internationalization Activities (K5 Int know/part) with Ratings of Academic Program Strategies for the Internationalization of the Curriculum

		Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.	Lower Bound	Upper Bound
A1 Infusion	Intercept	2.794**	.301		.000	2.200	3.389
	Slope	.248**	.083	.222**	.003	.085	.411
A2 On-campus	Intercept	2.418**	.305		.000	1.816	3.021
	Slope	.186*	.084	.166*	.028	.021	.351
A3 Virtual	Intercept	2.476**	.346		.000	1.793	3.158
	Slope	.157	.095	.124	.100	-.030	.344
A4 Concentration	Intercept	2.707**	.306		.000	2.102	3.312
	Slope	.114	.084	.102	.176	-.052	.280
A5 Short SA	Intercept	3.120**	.305		.000	2.519	3.721
	Slope	.195*	.084	.174*	.021	.030	.360
A6 Cohort	Intercept	2.698**	.329		.000	2.049	3.348
	Slope	.280**	.090	.229**	.002	.101	.458
A7 Exchange	Intercept	2.619**	.296		.000	2.035	3.203
	Slope	.368**	.081	.324**	.000	.207	.528
A8 Environment	Intercept	2.315**	.355		.000	1.614	3.016
	Slope	.276 **	.097	.210**	.005	.083	.468

Listwise *N* = 176.

*$p < .05$. **$p < .01$.

Overall, the rating for a specific academic program strategy increases with the increase in knowledge and participation (positive and significant slope and correlation), and, as explained above, this increase is similar to the increase “experienced” by all other academic program strategies.

The regression and correlation data from Table 33 between A10 Academic (the construct that groups together in a single variable all the academic program strategies) and K5 Int know/part, show how the “general” appreciation for the academic program strategies changes with level of knowledge of and participation in international and internationalization activities of the respondent. From the results, one can see that there is a statistically significant positive linear relationship between the variables; the higher the knowledge, the higher the general appreciation for the academic program strategies.

Table 33

Parameter Estimates of Linear Regression of Knowledge of and Participation in International and Internationalization Activities (K5 Int know/part) with the Construct Grouping all Academic Program Strategies (A10 Academic)

		Unstandardized Coefficients		Standardized Coefficients	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson’s *r*	Sig.
A10 Academic	Intercept	2.611**	.161		.000
	Slope	.238**	.044	.366**	.000

N = 189.

**$p < .01$.

Finally, according to the value and significance of Wilks' lambda of the multivariate analysis of variance in Table 30, one expects to find significant differences between the different levels of knowledge of and participation in international and internationalization activities for at least one of the I Institutional strategies variables. Table 34 shows the parameter estimates of linear regressions to investigate this expectation.

Table 34

Parameter Estimates of Linear Regressions of Knowledge of and Participation in International and Internationalization Activities (K5 Int know/part) with Ratings of Institutional Strategies to Support Faculty in their Internationalization Efforts

		Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.	Lower Bound	Upper Bound
I1 Time	Intercept	2.206**	.428		.000	1.361	3.050
	Slope	.351**	.118	.215**	.003	.118	.583
I2 Collaboration	Intercept	2.694**	.307		.000	2.087	3.300
	Slope	.206*	.085	.177*	.016	.039	.373
I3 Recognition	Intercept	1.224**	.395		.002	.444	2.004
	Slope	.624**	.109	.390**	.000	.410	.838
I4 Intellectual	Intercept	2.402**	.342		.000	1.727	3.076
	Slope	.082	.094	.064	.386	-.104	.267
I5 Funds	Intercept	2.222**	.298		.000	1.634	2.811
	Slope	.456**	.082	.379**	.000	.294	.618

Listwise *N* = 186.

*$p < .05$. **$p < .01$.

Table 34 shows that faculty appreciation for all institutional strategies except giving intellectual support to faculty (I4 Intellectual) increases with the increase in knowledge of and participation in international and internationalization activities. The fact that the rating of I4 Intellectual does not increase with knowledge and participation is intuitive, for one would expect that the more a faculty member knows, the less intellectual support s/he needs. Also, I4 Intellectual was the strategy with the lowest mean of all. It is neither surprising that it does not diminish, for the results obtained with the other strategies indicate that faculty who are more knowledgeable and participatory tend to have a predisposition to appreciate any internationalization strategy, whether academic or institutional. Among the rest of the strategies there are also statistically significant differences in the rate of increase in “appreciation” for the strategy with the level of knowledge and participation of the respondent. This comparison is based in the overlap (or lack thereof) of the confidence intervals of the slope estimate of the linear regression. The institutional strategy that has the highest correlation with knowledge and participation is I4 Recognition. The slope of the linear regression of I4 Recognition with K5 Int know/part is significantly different than that of the regression I2 Collaboration with K5 Int know/part, which has the smallest value among the significant correlations shown.

The regression and correlation data from Table 35 between I6 Institutional (a construct that groups together in a single variable all the institutional strategies) and K5 Int know/part, show how “general” appreciation for the institutional strategies changes with level of knowledge of and participation in international and internationalization activities of the respondent. From the results, one can see that there is a statistically significant positive linear relationship between the variables; the higher the knowledge, the higher the general appreciation for the institutional strategies.

Table 35

Parameter Estimates of Linear Regression of Knowledge of and Participation in International and Internationalization Activities (K5 Int know/part) with the Construct Grouping all Institutional Strategies (I6 Academic)

		Unstandardized Coefficients		Standardized Coefficients	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.
I6 Institutional	Intercept	2.170**	.256		.000
	Slope	.346**	.070	.339**	.000

N = 188.

**$p < .01$.

7.3. Associations with relevance and status of internationalization of the undergraduate agricultural curriculum, and perceived need for further internationalization

In this section, the researcher explores whether there are significant associations between the T variables (relevance and status of internationalization, and perceived need for further internationalization) and the A (academic program strategies for the internationalization of the curriculum) and I (institutional strategies to support faculty in their internationalization efforts) variables.

The first step in the analysis is to calculate the value and significance of Wilks' lambda for the corresponding multivariate analyses of variance, for the same reasons discussed in prior sections. The results summarizing these multivariate analyses of variance are shown in Table 36.

Table 36

Multivariate Analysis of Variance for Vectors A Academic Strategies and I Instructional Strategies, by T1 Relevance, T2 Status, and T3 Need

	Wilks' lambda					
Vector	Value	F	Hyp. df	Error df	Sig.	*N*
T1 Relevance						
A Academic strategies	.468	.777	154.0	996.228	.976	176
I Institutional strategies	.571	1.044	92.00	631.837	.378	186
T2 Status						
A Academic strategies	.610	1.499*	56.00	872.323	.012	176
I Institutional strategies	.834	1.003	32.00	635.900	.465	184
T3 Need						
A Academic strategies	.830	1.110	28.00	585.522	.320	173
I Institutional strategies	.901	1.147	16.00	529.161	.308	181

*$p < .05$.

7.3.1. Associations with relevance of internationalization of the curriculum

The value and significance of the Wilks' lambda in Table 36 indicated that there were no expected differences in the association between faculty members' perceived relevance of internationalization of the curriculum with the ratings among the various academic program or institutional strategies (also shown through the fact that all regression slopes in Tables 37 and 38 overlap). In terms of the specific relationship between perception of relevance with these variables, Tables 37 and 38 show that the higher the perceived relevance of internationalization is, the higher value respondents place on all strategies, both academic and institutional. These results are intuitive, and the explanation is similar to the one given above regarding the association between knowledge of and participation in international and internationalization activities and the rating of the different strategies.

Table 37

Parameter Estimates of Linear Regressions of Perceived Relevance of Internationalization (T1 Relevance) with Ratings of Academic Program Strategies for Internationalization of the Curriculum

		Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.	Lower Bound	Upper Bound
A1 Infusion	Intercept	2.252**	.334		.000	1.593	2.911
	Slope	.382**	.088	.313**	.000	.209	.556
A2 On-campus	Intercept	1.223**	.321		.000	.589	1.858
	Slope	.498**	.085	.407**	.000	.331	.665
A3 Virtual	Intercept	1.865**	.386		.000	1.103	2.627
	Slope	.314**	.102	.228**	.002	.113	.514
A4 Concentration	Intercept	1.845**	.336		.000	1.181	2.509
	Slope	.340**	.089	.280**	.000	.165	.515
A5 Short SA	Intercept	2.546**	.338		.000	1.879	3.213
	Slope	.340**	.089	.278**	.000	.164	.515
A6 Cohort	Intercept	2.166**	.366		.000	1.444	2.888
	Slope	.410**	.096	.307**	.000	.220	.600
A7 Exchange	Intercept	2.437**	.337		.000	1.773	3.102
	Slope	.399**	.089	.323**	.000	.224	.575
A8 Environment	Intercept	1.297**	.383		.001	.541	2.053
	Slope	.536**	.101	.374**	.000	.337	.735

Listwise *N* = 176.

**$p < .01$.

Table 38

Parameter Estimates of Linear Regressions of Perceived Relevance of Internationalization (T1 Relevance) with Ratings of Institutional Strategies to Support Faculty in their Internationalization Efforts

		Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.	Lower Bound	Upper Bound
I1 Time	Intercept	1.728**	.453		.000	.833	2.622
	Slope	.466**	.120	.275**	.000	.229	.702
I2 Collaboration	Intercept	2.053**	.320		.000	1.422	2.684
	Slope	.370**	.085	.307**	.000	.203	.537
I3 Recognition	Intercept	1.091*	.427		.011	.249	1.933
	Slope	.634**	.113	.383**	.000	.412	.857
I4 Intellectual	Intercept	.624	.334		.064	-.036	1.283
	Slope	.558**	.088	.422**	.000	.384	.733
I5 Funds	Intercept	1.486**	.298		.000	.897	2.074
	Slope	.636**	.079	.511**	.000	.481	.792

Listwise *N* = 186.

*$p < .05$. **$p < .01$.

Table 39 shows the values of the parameter estimates for the linear regression between the perceived relevance of internationalization with A10 Academic and I6 Institutional. These parameter estimates summarize the strong positive linear relationship that exists between the perceived relevance that internationalization has for a respondent, and this respondent's general appreciation of strategies for the internationalization of the curriculum (academic) as well as for strategies to support faculty in their internationalization efforts (institutional). These results were shown in

more detail in Tables 37 and 38, where one could see that this strong relationship also existed when looking at each strategy separately.

Table 39

Parameter Estimates of Linear Regression of Perceived Relevance of Internationalization (T1 Relevance) with the Constructs Grouping all Academic Strategies (A10 Academic) and all Institutional Strategies (I6 Institutional)

		Unstandardized Coefficients		Standardized Coefficients	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.
A10 Academic[a]	Intercept	1.940**	.154		.000
	Slope	.408**	.041	.593**	.000
I6 Institutional[b]	Intercept	1.269**	.245		.000
	Slope	.575**	.065	.546**	.000

[a]*N* = 189. [b]*N* = 188.

***p* < .01.

7.3.2. Associations with status of internationalization

The value and significance of the Wilks' lambda in Table 36 indicate that there are expected differences in the association between faculty perceptions regarding the status of the internationalization of the curriculum in their respective colleges with the level of appreciation for different academic program strategies. This can be explained if one considers that some strategies are most appropriate as "start up" activities, when internationalization is almost nil, while other strategies are more appropriate as "reinforcers" when an internationalization infrastructure is already in place. Table 40 shows the parameter estimates of the linear regressions of T2 Status with the different A variables.

Table 40

Parameter Estimates of Linear Regressions of Perceived Status of Internationalization (T2 Status) with Ratings of Academic Program Strategies for the Internationalization of the Curriculum

		Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.	Lower Bound	Upper Bound
A1 Infusion	Intercept	3.443**	.212		.000	3.026	3.861
	Slope	.080	.069	.088	.248	-.057	.217
A2 On-campus	Intercept	2.901**	.212		.000	2.482	3.320
	Slope	.062	.070	.067	.377	-.076	.199
A3 Virtual	Intercept	3.238**	.239		.000	2.766	3.709
	Slope	-.070	.078	-.068	.371	-.225	.084
A4 Concentration	Intercept	3.004**	.212		.000	2.587	3.422
	Slope	.038	.069	.041	.587	-.099	.175
A5 Short SA	Intercept	3.776**	.213		.000	3.357	4.196
	Slope	.013	.070	.014	.857	-.125	.150
A6 Cohort	Intercept	4.072**	.230		.000	3.617	4.527
	Slope	-.131	.076	-.130	.085	-.280	.018
A7 Exchange	Intercept	4.282**	.213		.000	3.861	4.702
	Slope	-.123	.070	-.132	.081	-.261	.015
A8 Environment	Intercept	3.681**	.248		.000	3.192	4.170
	Slope	-.133	.081	-.123	.103	-.293	.027

Listwise *N* = 176.

***p* < .01.

Although in Table 40 one can see that some of the slopes and correlations are negative while others are positive, none are significantly different from zero, which indicate that there is not a relationship between the rating given to the status of the internationalization and the rating given to the academic program strategy. These results also mean that the data do not reveal differential "appreciations" for the various strategies depending of perception of status. This does not coincide with what was interpreted through the significance of the Wilks' lambda in Table 36. According to Gall, Borg, and Gall (1996), "although unlikely, it is possible to obtain a significant MANOVA *F* without finding a significant *F* [or *t*] in any of the" latter tests (p. 396). This appears to be the case in this instance.

The value and significance of the Wilks' lambda in Table 36 indicates that there are no expected differences in the association between faculty perceptions regarding the status of the internationalization of the curriculum in their respective colleges, with the level of appreciation for different institutional strategies.

Table 41 shows that the level of appreciation for all institutional strategies decreases with an increase in the perceived status of internationalization, all the correlations and regression slopes being negative. All the regression slopes of T2 status with I institutional strategies overlap. These correlations and slopes, however, are only statistically significant for strategies I3 Institutional and I5 Funds.

When considering all the institutional strategies together in the same construct (I6 Institutional), the correlation and the slope of the linear regression between T2 status and I6 Institutional (Table 42) is negative and significant, which suggests that the higher the perception of status, the "lower" the perception of need (or appreciation) for the different institutional strategies to support faculty in their internationalization efforts. These results could be interpreted by saying that if someone perceives that internationalization is sufficient, there is little need for more. Table 42 also shows that the correlation and linear regression between A10 Academic and T2 Status is nonsignificant, which means that there is no association between the two variables, as was expected from the results of using the individual academic program strategies variables in Table 40.

Table 41

Parameter Estimates of Linear Regressions of Perceived Status of Internationalization (T2 Status) with Ratings of Institutional Strategies to Support Faculty in their Internationalization Efforts

		Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.	Lower Bound	Upper Bound
I1 Time	Intercept	3.872**	.296		.000	3.289	4.455
	Slope	-.137	.097	-.103	.162	-.329	.055
I2 Collaboration	Intercept	3.469**	.215		.000	3.045	3.892
	Slope	-.014	.071	-.014	.847	-.153	.126
I3 Recognition	Intercept	4.082**	.287		.000	3.516	4.648
	Slope	-.213*	.095	-.165*	.025	-.400	-.027
I4 Intellectual	Intercept	2.881**	.235		.000	2.418	3.345
	Slope	-.061	.077	-.059	.430	-.214	.091
I5 Funds	Intercept	4.332**	.216		.000	3.906	4.758
	Slope	-.164*	.071	-.168*	.022	-.304	-.023

Listwise *N* = 184.

*$p < .05$. **$p < .01$.

Table 42

Parameter Estimates of Linear Regression of Perceived Status of Internationalization (T2 Status) with the Constructs Grouping all Academic Strategies (A10 Academic) and all Institutional Strategies (I6 Institutional)

		Unstandardized Coefficients		Standardized Coefficients	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.
A10 Academic[a]	Intercept	3.533**	.121		.000
	Slope	-.026	.040	-.049	.508
I6 Institutional[b]	Intercept	3.759**	.181		.000
	Slope	-.118*	.059	-.145*	.049

[a]*N* = 188. [b]*N* = 186.

*$p < .05$. **$p < .01$.

7.3.3. Associations with need for further internationalization

The value and significance of the Wilks' lambda in Table 36 indicates that differences between faculty members in the perceived need for further internationalization of the curriculum were not associated with preferences for one or another academic program strategy or institutional strategy. As per the nature of the association between the perception of need for further internationalization and the appreciation for the different strategies, Tables 43 and 44 show that in all cases it is a statistically significant and positive linear relationship, which means that higher perceived need for further internationalization is associated with greater appreciation for both academic and institutional strategies. These results are intuitive, and the explanation is similar to the one given when justifying the association between knowledge of and participation in international and internationalization activities (as well as perception of relevance) and the rating of the different strategies.

Table 43

Parameter Estimates of Linear Regressions of Perceived Need for Further Internationalization (T3 Need) with Ratings of Academic Program Strategies for the Internationalization of the Curriculum

		Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.	Lower Bound	Upper Bound
A1 Infusion	Intercept	3.136**	.273		.000	2.597	3.675
	Slope	.132*	.064	.156*	.041	.006	.258
A2 On-campus	Intercept	1.606**	.252		.000	1.110	2.103
	Slope	.354**	.059	.418**	.000	.238	.471
A3 Virtual	Intercept	2.143**	.300		.000	1.551	2.736
	Slope	.216**	.070	.229**	.002	.078	.355
A4 Concentration	Intercept	2.002**	.256		.000	1.497	2.507
	Slope	.273**	.060	.329**	.000	.155	.391
A5 Short SA	Intercept	2.830**	.265		.000	2.307	3.352
	Slope	.236**	.062	.280**	.000	.114	.359
A6 Cohort	Intercept	2.554**	.290		.000	1.982	3.126
	Slope	.274**	.068	.295**	.000	.140	.407
A7 Exchange	Intercept	2.956**	.269		.000	2.424	3.487
	Slope	.232**	.063	.271**	.000	.108	.357
A8 Environment	Intercept	1.622**	.295		.000	1.039	2.205
	Slope	.401**	.069	.405**	.000	.264	.537

Listwise $N = 173$.

*$p < .05$. **$p < .01$.

Table 44

Parameter Estimates of Linear Regressions of Perceived Need for Further Internationalization (T3 Need) with Ratings of Institutional Strategies to Support Faculty in their Internationalization Efforts

		Unstandardized Coefficients		Standardized Coefficients		95% Confidence Interval for B	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.	Lower Bound	Upper Bound
I1 Time	Intercept	2.406**	.357		.000	1.701	3.111
	Slope	.263**	.084	.229**	.002	.098	.429
I2 Collaboration	Intercept	2.494**	.257		.000	1.985	3.002
	Slope	.227**	.060	.271**	.000	.108	.347
I3 Recognition	Intercept	1.744**	.335		.000	1.083	2.406
	Slope	.413**	.079	.365**	.000	.258	.568
I4 Intellectual	Intercept	1.251**	.271		.000	.717	1.785
	Slope	.352**	.063	.383**	.000	.227	.478
I5 Funds	Intercept	2.141**	.238		.000	1.671	2.611
	Slope	.415**	.056	.486**	.000	.305	.525

Listwise $N = 181$.

*$p < .05$. **$p < .01$.

Table 45 shows the values of the parameter estimates for the linear regression between the perceived need for further internationalization with A10 Academic and I6 Institutional, constructs that group, respectively, all the academic and institutional strategies together. These parameter estimates summarize the strong positive linear relationship that exists between the perceived need for further internationalization and general appreciation for internationalization strategies. These results were shown with more detail in Tables 43 and 44, where one could see that this strong relationship also existed when looking at each strategy separately.

Table 45

Parameter Estimates of Linear Regression of Perceived Need for Further Internationalization (T3 Need) with the Constructs Grouping all Academic Strategies (A10 Academic) and all Institutional Strategies (I6 Institutional)

		Unstandardized Coefficients		Standardized Coefficients	
Dep. Variable	Parameter estimated	B	*SE*	Beta Pearson's *r*	Sig.
A10 Academic[a]	Intercept	2.322**	.124		.000
	Slope	.275**	.029	.572**	.000
I6 Institutional[b]	Intercept	1.902**	.197		.000
	Slope	.367**	.046	.509**	.000

[a]*N* = 185. [b]*N* = 183.

*$p < .05$. **$p < .01$.

7.4. Associations between academic program strategies and institutional strategies

In this section, the researcher explores whether there are associations between the ratings of the academic program strategies for the internationalization of the curriculum and the ratings of the institutional strategies to support faculty in their internationalization efforts. The correlation analysis (2-tailed) between A10 Academic and I6 Institutional indicates that the two variables are highly correlated ($r = .583$, sig. = .000, $N = 187$). This means that faculty tendency to rate highly the academic program strategies coincides with the tendency to rate highly the institutional strategies. From a practical standpoint, however, it is more important to know if faculty preferences for a specific academic program strategy are predictive of their choice of institutional strategy. Similarly, implementation of particular institutional strategies could be predictive of the directions in which academic programs are likely to develop. This could be helpful to the administration, for example, if they wanted to know how to concentrate

their efforts in order to nurture a specific academic program strategy. From another perspective, this provides a means by which to offer incentives to nurture particular program directions, for example, by rewarding faculty who had been active in pioneering specific efforts. Table 46 shows the correlations among the eight different academic program strategies and the six types of institutional strategies.

Table 46 shows how faculty preferences for the various academic strategies are correlated with the preferences for the institutional strategies, and vice versa. As we had seen in Section Four of this chapter, the highest-ranked academic strategies were the mobility strategies (A6 Cohort, A5 Short SA, and A7 Exchange) and Infusion (A1 Infusion). The ratings of the mobility strategies are statistically positively correlated with I5 Funds, the institutional strategy that received the highest rating, as shown in section five of the chapter. The result is intuitive, for mobility strategies need a considerable amount of money for both preparation and implementation, mainly to pay travel and accommodation costs for the faculty member, and to subsidize the cost for the students (many argue that the cost of mobility strategies is one of the most important deterrents for student participation). I5 Funds is correlated with all other academic program strategies (which is understandable) except for A1 Infusion. In the way that infusion strategies were presented in the questionnaire, they did not seem to require much money for implementation.

The ratings of the mobility strategies are statistically correlated with I1 Time, meaning that the greater appreciation for the mobility strategies is related to greater perception of requirement for additional time. This result is intuitive if we think that respondents are considering their own participation in mobility programs, because the preparation and implementation of any mobility program requires a considerable amount of time. In the case of faculty members who go abroad with the students, this time s easily quantified. In addition, an important amount of less easily-quantified time is spent in student recruitment for study abroad programs, especially in CAES, where student participation in study abroad is very low and instructors have to fill their courses with students from other colleges or even from other universities (as was mentioned by one of the interviewees).

Table 46

Correlations Between Faculty Ratings of Academic Program Strategies for the Internationalization of the Curriculum and Institutional Strategies to Support Faculty in their Internationalization Efforts

Variable	Corr.	I1 Time	I2 Collab.	I3 Recog.	I4 Intel.	I5 Funds
A1 Infusion	*R*	.036	.167*	.271**	.206**	.131
	Sig.	.625	.024	.000	.005	.077
	N	184	184	183	184	184
A2 On-campus	*R*	.067	.105	.264**	.357**	.223**
	Sig.	.362	.153	.000	.000	.002
	N	187	187	185	187	187
A3 Virtual	*R*	.097	.103	.130	.270**	.174*
	Sig.	.189	.166	.081	.000	.018
	N	184	184	182	184	184
A4 Concentrations	*R*	.154*	.155*	.176*	.377**	.266**
	Sig.	.036	.035	.017	.000	.000
	N	185	185	183	185	185
A5 Short SA	*R*	.239**	.182*	.162*	.110	.431**
	Sig.	.001	.013	.028	.135	.000
	N	185	185	183	185	185
A6 Cohort	*R*	.340**	.231**	.292**	.135	.520**
	Sig.	.000	.001	.000	.067	.000
	N	186	186	184	186	186
A7 Exchange	*R*	.309**	.138	.271**	.175*	.320**
	Sig.	.000	.061	.000	.017	.000
	N	185	185	183	185	185
A8 Environment	*R*	.128	.255**	.281**	.270**	.367**
	Sig.	.084	.000	.000	.000	.000
	N	184	184	182	184	184

**Correlation is significant at the .01 level (2-tailed). *Correlation is significant at the .05 level (2-tailed).

By contrast with mobility strategies, A1 Infusion is not correlated with I1 Time. In principle, this is surprising, for implementation strategies require a considerable amount of preparation of activities, curriculum development, and lesson adaptation. However, in this case, unlike the case of mobility, the time spent in infusion efforts is less easily quantified, and unless a respondent has actively been involved in infusion in the past, s/he might not realize the amount of time required. Also, one could argue that because infusion is presented as a change to be implemented throughout the curriculum, it is the responsibility of everyone and the efforts are diffused among all participants. While the collective time required is considerable, it does not fall upon a single person, as do many cases of study abroad programs. One could interpret that infusion does not require too much extra time, because it does not need new courses, just changes that can be done at the faculty member's own pace and intensity, and at moments when other duties are minimal. Also, if infusion is understood by the respondent as just including internationalized examples in regular classes, then this does require little preparation time.

Another possible explanation for the lack of correlation between A1 Infusion and I1 Time could be the significant correlation of A1 Infusion with I4 Intellectual, which would mean that the respondent interprets that much of the effort of infusion falls into the hands of an internationalization specialist, or has already been accomplished through readily available materials to change and adapt according to the faculty member's own needs. The only other academic program strategy variable correlated with I1Time is A4 Concentrations, which makes sense, especially if one takes into account that there was a significant correlation between A4 Concentrations and mobility strategies. The lack of correlation between I1 Time and A8 Environment could be explained in that even if one rates highly the environment, this does not increase their own need of time, for usually, the environmental change is the responsibility of centralized internationalization offices.

It is surprising, however, to see no correlation between A2 On-campus and I1Time, perhaps suggesting that people who rate highly the usefulness of on-campus international subject matter courses assume that someone else will be developing these courses. This piece of information is important, because it means that although

intuitively the “time” strategy would increase the number of on-campus international subject matter courses, this might not be so.

Mobility variables are also correlated with I3 Recognition, the institutional strategy ranked third. All other academic program variables, except A3 Virtual, are also correlated with I3 Recognition. This is not surprising, especially after hearing in the interviews that recognition is important at all levels, and for all types of efforts and academic program strategies chosen. Further, interviewees suggested that recognition is usually lacking or not well administered or balanced. For example, an interviewee who ranked infusion as his/her preferred academic program strategy, complained that only faculty members participating in study abroad programs are recognized as internationalizing the curriculum, while those teaching international content courses and infusing and adapting their curriculum to a more global perspective are not acknowledged. Also, one interviewee indicated that although they had participated in various internationalization activities (citing infusion, international content courses, internationalization of campus environment, and study abroad), he would not recommend that new assistant professors spend much time on it, for it would not be taken into account in their tenure evaluation. For this respondent, recognition was most important in all instances, regardless of the academic program strategy chosen.

I2 Collaboration shows highest correlation with A8 Environment. A8 Environment is also correlated with all other institutional strategies except time, as mentioned previously. I2 Collaboration is also correlated with A1 Infusion, A4 Concentrations, A5 Short SA, and A6 Cohort. Finally, I4 Intellectual, the lowest ranked of all the institutional strategies, is correlated with all academic program strategies except for A5 Short SA, and A6 Cohort.

Caution about this correlation analysis has already been raised in the above discussion; in some cases, the associations between various academic program strategies and institutional strategies might be skewed. For example, some respondents might have rated the institutional strategies from a philosophical perspective: “In an ideal situation, if I had to be responsible for all the internationalization efforts, I would like. . . . ” In other cases, the choice of institutional strategies might depend only on what could facilitate the individual respondent’s participation, based uniquely on the

academic strategies that s/he is personally inclined to be involved with. By contrast, his/her ratings of academic program strategies might be based on what s/he thinks students need, rather than on what strategies s/he is going to get involved with in the near future. For example, a respondent might consider that study abroad is very important, but might not plan to organize any study abroad course because s/he considers that other people are already doing a good job in study abroad activities and more are not needed. As a further example, a respondent might consider that internationalizing the campus environment should be the highest priority, but does not intend to take any responsibility for it for s/he considers that specialized offices at the university level are best positioned to do so. In both cases, institutional strategies directly supporting these efforts might receive lower ratings in these respondent's questionnaires because it is not specifically them who need that type of support (the questionnaire was phrased: Please indicate how much the following could support you in your efforts to internationalize the courses and programs for which you are responsible).

Looking at the general picture of preferences between specific academic program strategies for the internationalization of the curriculum, specific institutional strategies to support faculty in their internationalization efforts, and the associations among them, both qualitative and the quantitative data indicate that there is not a clear and universal preference for one strategy or another, academic or institutional, and there are not unique and separate associations. Some variables seem to follow the same trend, while others take different routes. These findings reiterate other results cited in the literature review, that there is not a single best approach to internationalization, but that multiple complementary strategies are needed to make a better whole (Brock, 1993; Ellingboe, 1997a, 1997b; Foster, 1999; Kezar, 2000; Kwok & Arpan, 1994; Mestenhauser & Ellingboe, 1998; Shetty & Rudell, 2000; Whalley, 1997);. As one of the respondents puts it, "this is no small project and it can never be complete."

8. HANDLING NONRESPONSE

One of the sources of error in survey research studies is nonresponse error (Dillman, 2000), which "exists to the extent that people included in the sample fail to provide usable responses and are different than those who do on the characteristics of interest in the study" (Lindner, Murphy, & Briers, 2001, p. 44). As this error increases, "the results and recommendations of that study become increasingly suspect and decreasingly valuable as evidence of the characteristic in the target population or in other audiences" (Lindner, Murphy, & Briers, 2001, p. 43). It is, therefore, very important to appropriately handle nonresponse.

The overall response rate from this study is 44% (30% at COALS and 67% at CAES). According to Miller and Smith (1983), nonresponse error is a threat to generalizability even with response rates of 90%, and, according to Lindner, Murphy and Briers (2001), with any response rate different from 100%. In this research, therefore, external validity is seriously threatened and needs to handle nonresponse error appropriately. In this section, the researcher first presents different procedures to handle nonresponse in social science research, then she explores, compares, and discusses the results of applying some of these procedures to the data of this study. Finally she explains how nonresponse is being handled in this study. With this section, the author is also trying to follow through with Miller (1998) and Lindner, Murphy, and Briers (2001) that agricultural educators should participate in the analysis and examination of available research methods and techniques in order for research in agricultural education to continue to advance.

Some of the most common statistical procedures used to assess nonresponse error are to:

1. Compare early to late respondents (Miller & Smith, 1983). Some define the groups by separating the first half of respondents from the second, others separate them according to "days to respond," others use "waves of responses;"
2. Compare respondents with nonrespondents (about 20), understanding that nonrespondents in this case are respondents that acted only after a "double-dipping" effort (Gall, Borg, & Gall, 1996). In this study, the researcher names these

reluctant respondents, or assumed nonrespondents, “double-dipped respondents” to avoid confusion with the “real nonrespondents;”

3. Compare waves of respondents (separating the waves according to different stimuli, which usually are follow-up letters or telephone contacts) (Armstrong & Overton, 1977, as cited by Lindner, Murphy, & Briers, 2001);
4. Finally, another statistical procedure to assess nonresponse error, proposed by Lindner, Murphy, and Briers (2001), is to use ’days to respond’ as a regression variable.

To explore, compare, and discuss the results of applying some of these procedures, the researcher first uses the data from UGA-CAES. The reason to start with UGA-CAES is because the sample is larger, the reasons for nonresponse are more easily attributable to the respondent’s decision not to respond (rather than, for example, to email problems encountered at COALS-TAMU), and the researcher has a sample of 32 “reluctant respondents” or “double-dipped respondents,” a number that is considered large enough to be meaningful both practically and statistically (Lindner, Murphy, & Briers, 2001).

The four methods used for this particular analysis were:

1. Compare early to late respondents, defining the groups by separating the first half of respondents from the second. This was done twice, first considering all respondents, and second eliminating the “double-dipped respondents” (those who only responded after personal visits and requests). The reason for doing this is to accommodate in the analysis and comparison both the data of this study, and the situation in which researchers who do not “double-dip” respondents would find themselves. The absence of “double-dipped respondents” is probably the most common situation for researchers assessing their nonresponse error by comparing early to late respondents. In principle, if they had “double-dipped” respondents, they would be using the following comparison (comparison 2);
2. Compare respondents with “nonrespondents” (also named reluctant respondents, or double-dipped respondents, as dubbed in this study and as explained above);

3. Compare waves of respondents. In this study we had four waves: Response after the first contact by the Associate Dean for academic affairs, response after the first letter from the researcher, response after the second reminder letter, and response after personal contact. One caution about using this method in our case is that the third wave only has nine respondents, which is probably too small a sample to be meaningful statistically. As was done when comparing early to late respondents, this analysis was performed twice, first considering all respondents (the four waves), and second eliminating the "double-dipped respondents" (fourth wave), for the same reasons explained above;
4. Use "'days to respond' as a regression variable. Days to respond were recorded precisely, because the questionnaire was answered on-line and received by the researcher through an "instantaneous" dated e-mail. As for earlier comparisons, this analysis was done twice, first considering all respondents, and second eliminating the "double-dipped nonrespondents."

The comparisons were made for all variables, demographic and scale (Likert-type responses), with different statistical procedures. In the analysis for the demographic variables, the researcher used symmetry measures (Cramer's V), and for the scale variables, the researcher used *t*-tests (when comparing early *vs.* late respondents and respondents *vs.* "double-dipped respondents"), ANOVAs (when comparing waves of responses), and regressions (when using days to respond as regression variable). One caution about this analysis is that the researcher conducted a large number of tests and comparisons, which increased the probability of a "false" significant difference, or type I error.

Table 47 shows the significance of the Cramer's V performed to compare demographic variables in the following crosstabulations 1) early *vs.* late respondents, 2) respondents *vs.* "double-dipped respondents," and 3) waves of respondents.

Table 47

Significance of Cramer's V of Different Cross-tabulations for Assessing Nonresponse Error for Demographic Variables in the UGA study: Comparing Early vs. Late Respondents, Respondents vs. Nonrespondents (Those Who Only Responded After Personal Visits and Requests), and Different Waves of Respondents

	Early *vs.* late		Resp. *vs.* non-resp.	Waves (4 and 3)	
Variable	All[a]	Part[b]		All[a] (4)	Part[b] (3)
D1 Gender	.943	.106	.058	.230	.752
D2G Years UGA/TAMU	.366	.733	.698	.966	.956
D3G Years in HE	.635	.259	.970	.990	.936
D4 Tenure	.316	.564	.663	.573	.462
D5 Rank	.538	.792	.856	.861	.707
D6G Dept type	.448	.166	.727	.624	.454
D7G % time teaching	.688	.976	.290	.550	.650
D8 Responsibilities	.681	.635	.684	.600	.439

[a]All responses received are included in this analysis, including the ones received after personal visit and request to "double-dipped nonrespondents." [b]Only responses received before personal visits and requests are included in this analysis.

Table 48 reports the significance of the tests performed on the scale variables for assessing nonresponse error. The tests performed are: *t*-tests comparing early *vs.* late respondents, *t*-tests comparing respondents *vs*. "double-dipped respondents", ANOVA for different waves of respondents, and the regression slope, using days to respond as the regression variable.

Table 48

Test Significance of Different Procedures for Assessing Nonresponse Error for Scale Variables in the UGA study: T-Tests Comparing Early vs. Late Respondents, T-Tests Comparing Respondents vs. Nonrespondents (Those Who Only Responded After Personal Visits and Requests), ANOVA for Different Waves of Respondents, and Regression Slope, Using Days to Respond as Regression Variable

	Early *vs.* late		Resp. *vs.* non-resp.	Waves (4 and 3)		Regression	
	All[a]	Part[b]		All[a] (4)	Part[b] (3)	All[a]	Part[b]
Variable	Sig.[c]	Sig.[c]	Sig.[c]	Sig.[d]	Sig.[d]	Sig.[e]	Sig.[e]
K1 Int (gen) know	.083	.614	.029*	.226	.951	.042*	.885
K2 Int (gen) part	.001**	.164	.012*	.031*	.214	.008**	.078
K3 Curr int know	.090	.920	.041*	.204	.812	.026*	.387
K4 Curr int part	.224	.834	.0501	.367	.988	.148	.625
K5 Int know/part	.016*	.844	.009**	.089	.705	.013*	.457
T1 Relevance	.183	.866	.218	.546	.781	.214	.990
T2 Status	.216	.758	.048*	.002**	.005**	.145	.446
T3 Need	.781	.836	.982	.962	.873	.837	.486
S1 Interpersonal	.397	.567	.230	.661	.802	.135	.261
S2 Analytical	.592	.398	.767	.565	.429	.748	.049*
S3 Communication	.335	.412	.601	.401	.318	.260	.045*
S4 Technical	.364	.110	.791	.641	.424	.549	.151
S5 International	.436	.681	.459	.337	.291	.384	.284
S6 Computer	.336	.513	.604	.567	.469	.384	.208
S7 Experience	.413	.603	.407	.542	.493	.278	.173
S8 Employers	.360	.407	.525	.536	.461	.245	.060

Table 48 *Continued*

	Early *vs.* late		Resp. *vs.* non-resp.	Waves (4 and 3)		Regression	
	All[a]	Part[b]		All[a] (4)	Part[b] (3)	All[a]	Part[b]
Variable	Sig.[c]	Sig.[c]	Sig.[c]	Sig.[d]	Sig.[d]	Sig.[e]	Sig.[e]
A1 Infusion	.830	.574	.282	.807	.981	.440	.677
A2 On-campus	.574	.821	.015*	.193	.873	.059	.850
A3 Virtual	.841	.593	.786	.822	.697	.915	.776
A4 Concentrations	.714	.834	.743	.942	.873	.684	.765
A5 Short SA	.760	.162	.305	.503	.517	.556	.357
A6 Cohort	.288	.629	.067	.287	.852	.042*	.651
A7 Exchange	.178	.902	.074	.158	.380	.015*	.053
A8 Environment	.572	.473	.349	.844	.970	.374	.793
A10 Academic	.731	.585	.268	.760	.962	.271	.942
I1 Time	.268	.828	.038*	.192	.771	.038*	.447
I2 Collaboration	.148	.490	.636	.079	.040*	.549	.891
I3 Recognition	.059	.182	.150	.536	.936	.104	.505
I4 Intellectual	.889	.992	.898	.980	.920	.925	.689
I5 Funds	.132	.806	.025*	.145	.928	.037*	.744
I6 Institutional	.304	.629	.106	.340	.832	.114	.955

[a]All responses received are included in this analysis, including the ones received after personal visit and request to "double-dipped nonrespondents." [b]Only responses received before personal visits and requests are included in this analysis. [c]Significance of the independent samples *t*-test, equal variances not assumed. [d]Significance of ANOVA test. [e]Significance of regression slope.

*$p < .05$. **$p < .01$.

If any of the tests from Table 48 are significant, this is evidence of nonresponse error in the survey data, which means a threat to external validity and generalizability of the study. In addition, one may note that, instead of showing each analysis separately, all the significance values have been put into only two tables, Table 47 for demographic variables and Table 48 for scale variables, so it is easier to show the comparison of the results obtained as a result of using different methodologies. If the patterns of the results obtained with the various tests are not similar, this is an indication that the methods that are often used interchangeably are actually not "equivalent," at least for the data of this study. This means that further investigation into the statistical procedures and methodologies most commonly used in survey research in agricultural education is be warranted.

The results from Table 47 indicate that one should not expect demographic differences among respondents and nonrespondents: The Cramer's V is nonsignificant in all cases, regardless of the comparison made. According to Lindner, Murphy, and Briers (2001), some researchers, to assess their nonresponse error, only compare groups for demographic characteristics. If we had followed this rule in this study, we would have concluded that there was no evidence of nonresponse error. However, if one looks at the comparison of groups of respondents according to their responses to scale variables (Table 48), the panorama is different, and, therefore, the conclusions about nonresponse error are also different.

If one looks in Table 48 (third column) at the significances of the *t*-test comparing early *vs.* late respondents (50% of respondents for each group), when considering only respondents that answered to written communications (that is, excluding "double-dipped nonrespondents") none of the comparisons are significant. Therefore, the assessment of nonresponse error based on the concept that late respondents are similar to nonrespondents would not have found potential differences between respondents and nonrespondents, and would have disregarded the threat of nonresponse error.

The outcome is different, however, if one includes the "double-dipped respondents" in the analysis. When using the same methodology as above, comparing early *vs.* late respondents (first 50% against second 50%), there are significant differences between the two groups for variables K2 Int (gen) part (participation in international activities)

and K5 Int know/part (knowledge and participation in international and internationalization activities), with K2 and K5 being significantly larger with early respondents than with late respondents (see Table 49 for more information).

This result is in part intuitive, for it is expected that faculty members that are active in international activities would be more likely to answer the questionnaire than those who do not participate in such activities, even if it is just because of a personal interest in seeing advances at the university in programs to support the internationalization process. In fact, the researcher expected to find these results, not only because of its intuitiveness, but also because during her visits to teaching faculty to ask them to respond to the questionnaire (double-dipping efforts), most of the people that had not answered justified it by saying “it’s just that I don’t do many things that are international, and I did not think you would be interested in what I had to say.” This type of comments occurred sufficiently often to concern the researcher that her study was threatened by nonresponse error, and the results may not be generalizable to the entire study population.

If the researcher directly compares the respondents with the assumed nonrespondents (double-dipped respondents), even more significant differences between the two groups appear. The variables for which there are significant differences are: K1 Int (gen) know, K2 Int (gen) part, K3 Curr int know, K5 Int know/part, T2 Status, A2 On-campus, I1 Time, and I5 Funds. Table 49 compares the means and standard deviations between the two groups, respondents and double-dipped respondents, for each scale variable. As seen in the Table 49, respondents rank higher than double-dipped respondents for the knowledge variables (K1, K2, K3, and K5), and for the institutional strategies variables (I1 and I5), but rank lower than double-dipped respondents in T2 Status and A2 On-campus. Before discussing these patterns, the researcher is first going to present the information provided by the comparison among waves and the regression lines (with days to respond as regression variable).

Table 49

Means and Standard Deviations of Scale Variables Comparing Respondents and Double-Dipped Respondents (DD Respondent) at CAES-UGA

Variable	Respondents	*N*	*M*	*SD*
K1 Int (gen) know	Respondent	81	3.9753	0.86927
	DD Respondent[a]	32	3.6094	0.74849
K2 Int (gen) part	Respondent	81	3.42	1.082
	DD Respondent	32	2.91	0.893
K3 Curr int know	Respondent	80	3.60	0.880
	DD Respondent	32	3.22	0.870
K4 Curr int part	Respondent	81	3.15	1.130
	DD Respondent	31	2.74	0.893
K5 Int know/part	Respondent	81	3.6165	0.81176
	DD Respondent	32	3.2203	0.67272
T1 Relevance	Respondent	81	3.7422	0.74086
	DD Respondent	32	3.5349	0.81725
T2 Status	Respondent	81	2.8210	0.95952
	DD Respondent	30	3.2000	0.84690
T3 Need	Respondent	81	4.15	1.141
	DD Respondent	28	4.14	1.044
S1 Interpersonal	Respondent	81	4.04	0.955
	DD Respondent	32	3.84	0.677
S2 Analytical	Respondent	81	4.46	0.852
	DD Respondent	32	4.50	0.622
S3 Communication	Respondent	81	4.33	0.894
	DD Respondent	31	4.26	0.575

Table 49 *Continued*

Variable	Respondents	*N*	*M*	*SD*
S4 Technical	Respondent	81	4.20	0.679
	DD Respondent	32	4.16	0.767
S5 International	Respondent	79	3.32	1.092
	DD Respondent	32	3.19	0.693
S6 Computer	Respondent	81	3.67	0.894
	DD Respondent	32	3.59	0.560
S7 Experience	Respondent	80	3.54	0.841
	DD Respondent	32	3.41	0.712
S8 Employers	Respondent	81	4.2757	0.80414
	DD Respondent	32	4.1979	0.47033
A1 Infusion	Respondent	81	3.72	0.925
	DD Respondent	30	3.53	0.730
A2 On-campus	Respondent	81	3.02	0.961
	DD Respondent	30	3.43	0.679
A3 Virtual	Respondent	80	3.01	1.037
	DD Respondent	30	2.97	0.669
A4 Concentrations	Respondent	81	3.17	0.959
	DD Respondent	30	3.23	0.817
A5 Short SA	Respondent	81	3.78	0.935
	DD Respondent	29	3.59	0.825
A6 Cohort	Respondent	81	3.73	0.975
	DD Respondent	30	3.33	0.994
A7 Exchange	Respondent	81	3.96	0.928
	DD Respondent	30	3.60	0.932

Table 49 *Continued*

Variable	Respondents	*N*	*M*	*SD*
A8 Environment	Respondent	79	3.38	0.991
	DD Respondent	30	3.20	0.847
A10 Academic	Respondent	81	3.4711	0.51527
	DD Respondent	30	3.3589	0.45067
I1 Time	Respondent	79	3.42	1.326
	DD Respondent	31	2.84	1.267
I2 Collaboration	Respondent	79	3.33	0.916
	DD Respondent	31	3.42	0.886
I3 Recognition	Respondent	78	3.51	1.256
	DD Respondent	31	3.13	1.231
I4 Intellectual	Respondent	79	2.7595	1.01826
	DD Respondent	31	2.7312	1.03787
I5 Funds	Respondent	79	3.9568	0.96547
	DD Respondent	31	3.4758	0.98817
I6 Institutional	Respondent	79	3.4708	0.76142
	DD Respondent	31	3.1721	0.89109

[a]Double-dipped respondent.

When comparing among waves, if one uses all respondents, the ANOVA yields a significant F for variables K2 Int (gen) part, and T2 Status. If the fourth wave is not used, the F is significant for T2 Status and I2 Collaboration. For both T2 and I2 Collaboration, the wave with highest mean is the first wave, and the wave with the lowest mean is wave 2. This pattern indicates that the difference in this case is probably not attributable to differences between respondents and nonrespondents. Here is a case, for example, where the information provided by the waves help to interpret the

results obtained in the comparison between respondents and double-dipped respondents, and help to understand that the significance of the test does not really indicate a difference between respondents and nonrespondents.

Finally, when using the regression analysis, if one uses only the respondents that answered to written requests, the results are different and less informative than the one obtained through the comparison of respondents and double-dipped respondents. However, if one uses all the respondents, the results obtained are very similar to those provided by the comparison of respondents with double-dipped respondents. Of the variables that yielded a significant difference in the respondent *vs.* double-dipped respondent test (K1 Int (gen) know, K2 Int (gen) part, K3 Curr int know, K5 Int know/part, T2 Status, A2 On-campus, I1 Time, and I5 Funds), only T2 Status and A2 On-campus do not show a significant regression slope. As explained previously by the ANOVA or the waves, the researcher was doubtful that these two significant tests were signaling a diffence among respondents and nonrespondents. Also, A6 Cohort and A7 Exchange, that did not show significant differences in the comparison between respondents and double-dipped respondents, have a significant regression slope. The explanation for the differences with A6 and A7 lays in where the significance threshold has been set: For example, if instead of establishing significance at $p < .05$, we had established it for $p < .075$, the *t*-tests for both A6 Cohort and A7 Exchange would have been considered significant (sig. = .067 and sig. = .074 respectively).

In summary, according to the results and patterns compared in this analysis, the assessment of nonresponse error is more accurate if one uses double-dipped respondents. A *t*-test between respondents and double-dipped respondents is an adequate method of analysis, and probably the simplest. In addition, if “days to respond” are available, a regression using days to respond as the regression variable might provide additional information about the details of the difference between respondents and nonrespondents. If days to respond are not available, looking at trends and patterns through the data provided by the different “waves” of respondents might be a good alternative. None of the methods discussed provide valuable results in the absence of the information provided by the double-dipped respondents. However, in the

absence of data from double-dipped respondents, it is better to at least use one of the available methods, and analyze both for the demographic and the scale variables.

In terms of this particular study, the assessment of nonresponse error using information provided by more than one method, indicates that there is in fact, a high probability of nonresponse error, and therefore, the study's external validity and generalizability are threatened. Particularly, there is a high probability of differences between respondents and nonrespondents in "knowledge variables" (International knowledge/expertise, participation in international activities, ability to internationalize the curriculum, and the construct that puts together all these variables: Knowledge and participation in international and internationalization activities). One should also expect differences between respondents and nonrespondents in their ratings for some of the academic program strategies and institution strategies, particularly A6 Cohort, A7 Exchange, I1 Time, and I5 Funds, variables that are, in turn, positively correlated with the knowledge variables.

Finally, when performing these analysis for COALS-TAMU, the results are as shown in Table 50. In view of the results, the researcher explored the pattern followed by S4 Technical and found that the highest mean was for wave 2, by I2 Collaboration, and found that the lowest mean was for wave 2, and by T2 Status, that showed a pattern totally different than the one obtained at UGA (for UGA and TAMU together, the lowest mean was for wave 2). In view of the results, the researcher concluded that the test significance did not reveal differences between respondents and nonrespondents, but other types of patterns, if not just the result of a type I error.

For this particular study, however, the researcher cannot dismiss the possibility of nonresponse error given the analysis and explanations presented for the data at UGA.

Table 50

Test Significance of Different Procedures for Assessing Nonresponse Error for Scale Variables: T-Tests Comparing Early vs. Late Respondents, T-Tests Comparing Respondents vs. Nonrespondents (Those Who Only Responded After Personal Visits and Requests), ANOVA for Different Waves of Respondents, and Regression Slope, Using Days to Respond as Regression Variable, at TAMU

	Early *vs.* late	Waves	Regression
Variable	Sig.[a]	Sig.[b]	Sig.[c]
K1 Int (gen) know	.796	.548	.933
K2 Int (gen) part	.159	.833	.771
K3 Curr int know	.228	.944	.883
K4 Curr int part	.965	.375	.683
K5 Int know/part	.842	.643	.981
T1 Relevance	.695	.979	.955
T2 Status	.838	.018*	.019*
T3 Need	.442	.787	.710
S1 Interpersonal	.845	.673	.891
S2 Analytical	.359	.591	.239
S3 Communication	.310	.610	.675
S4 Technical	.127	.012*	.394
S5 International	.866	.877	.864
S6 Computer	.533	.693	.571
S7 Experience	.625	.757	.665
S8 Employers	.509	.815	.506
A1 Infusion	.761	.789	.816
A2 On-campus	.606	.591	.210
A3 Virtual	.338	.134	.855

Table 50 *Continued*

Variable	Early *vs.* late Sig.[a]	Waves Sig.[b]	Regression Sig.[c]
A4 Concentrations	.369	.238	.767
A5 Short SA	.610	.736	.601
A6 Cohort	.115	.729	.397
A7 Exchange	.499	.973	.682
A8 Environment	.654	.877	.713
A10 Academic	.358	.393	.699
I1 Time	.128	.953	.963
I2 Collaboration	.023*	.476	.300
I3 Recognition	.299	.467	.387
I4 Intellectual	.286	.899	.587
I5 Funds	.413	.803	.929
I6 Institutional	.275	.922	.902

[a]Significance of the independent samples *t*-test, equal variances not assumed. [b]Significance of ANOVA test. [c]Significance of regression slope.

*$p < .05$. **$p < .01$.

9. SUMMARY OF FINDINGS

In summary, faculty knowledge of international issues was positively correlated with their participation in the internationalization process. Knowledge and participation were, in turn, positively correlated with faculty perceptions of relevance of internationalization of the curriculum, and with faculty acceptance of most of the proposed academic and institutional strategies for internationalization.

Faculty ranked mobility and infusion approaches as their preferred academic strategies for internationalization of the curriculum, and there were clear patterns of

associations between selections by faculty, with mobility and infusion belonging to different groups.

When asked about incentives to participate in the internationalization process, faculty mentioned funds, “real” recognition, and release time as their foremost choices. Also, faculty expressed a need for increased leadership, vision, and focus for the process. When looking at the academic and institutional strategies together, various patterns of association also appeared.

The analysis of data also revealed important disparities in the assessment of nonresponse error depending on the evaluation method used.

Table 51 outlines major findings of the study.

Table 51

Summary of Major Findings of The Study: Analysis of Factors Affecting Participation of Faculty and Choice of Strategies for the Internationalization of the Undergraduate Agricultural Curriculum: The Case in Two Land Grant Universities, 2004

Research Question	Key findings
1. What demographic characteristics of the respondents affect their perspectives on, and participation in, the internationalization of the undergraduate agricultural curriculum?	Gender, departmental affiliation, and duration of employment affected faculty perspectives on some aspects of the internationalization process.

Table 51 *Continued*

Research Question	Key findings
2. What is the faculty members' self-perceived level of international knowledge/expertise, participation in international activities, ability to internationalize the curriculum, and participation in curriculum internationalization efforts? What are the relationships between these variables?	Variables were quantified. Relationships between variables: 1. Knowledge of and participation in general international activities was significantly higher than knowledge of and participation in curriculum internationalization activities; 2. Self-perceived level of knowledge was significantly higher than the self-perceived level of participation; 3. There was a significant linear relationship between all the variables describing knowledge of and participation in international and internationalization activities.
3. What do the faculty of selected colleges of agriculture perceive to be priorities for the undergraduate agricultural curriculum?	The rank of priorities was as follows, from least important to most: 1. International awareness and/or experience; 2. Prior work and/or internship experience; 3. Computer skills; 4. Interpersonal skills; 5. Technical competency; 6. Communication skills; 7. Analytical skills.

Table 51 *Continued*

Research Question	Key findings
3. Continued	The relevance of the internationalization of the undergraduate agricultural curriculum was rated between average/neutral and high/somewhat positive.
What is the level of priority given to internationalization?	The study of the perceived relevance revealed the "comparison dilemma." Respondents agreed that further internationalization of the was needed. Individuals who placed high relevance on internationalization also perceived a greater need for further internationalization.
What do the faculty perceive to be the present status of the internationalization of the undergraduate agricultural curriculum at the two institutions surveyed?	The status was rated between "not much" and "neutral." Some rationales to justify internationalization: 1. Academic rationale; 2. U.S. economic and political competitiveness; 3. Increasingly interdependent nature of the world; 4. Cultural and social issues. Reasons for stagnation of internationalization (no particular order): 1. Lack of need; 2. Isolationist and provincial attitudes of constituents; 3. Lack of vision, leadership, and support; 4. Faculty lack of knowledge and limitations; 5. Lack of a foreign language requirement and the underlying message that goes with it; 6. Lack of flexibility of the curriculum; 7. Lack of consistency and communication; 8. Inadequate emphasis by advisors on having students participate in international experiences.

Table 51 *Continued*

Research Question	Key findings
4. How do the faculty in selected colleges of agriculture evaluate and prioritize different academic program strategies used for the internationalization of the curriculum?	The ranking of academic program strategies was as follows, from least important to most: 1. Technology and virtual mobility; 2. On-campus courses; 3. Concentrations; 4. Internationalize campus environment; 5. Infusion; 6. Cohort semester abroad; 7. Short-term study abroad courses; 8. Semester exchange programs and internships. The analysis of correlations between academic strategies showed clear patterns of associations between them. Comparative advantages and disadvantages of different academic program strategies were discussed.
5. How do the faculty in selected colleges of agriculture evaluate and prioritize different institutional strategies to support their efforts to internationalize the curriculum?	Respondents ranked institutional strategies, from least important to most: 1. Intellectual support; 2. Collaboration; 3. Recognition; 4. Release time; 5. Funds (sabbaticals, travel, course development, subsidize student participation, recruit international students).

Table 51 *Continued*

Research Question	Key findings
5. Continued	The most controversial institutional strategy was recognition, with faculty indicating that it should be implemented equally at the university, college, and departmental levels, and that it had to apply for all types of internationalization efforts. Other incentives for faculty were presented and included: 1. Increased leadership and vision; 2. A cultural change showing increased interest by administrators, faculty, students, and stakeholders. Comparative advantages and disadvantages of different academic program strategies were explained.
6. Are there significant differences between the results obtained at the two institutions surveyed?	Differences in demographic characteristics: Distribution of genders, percent time spent teaching, and percent of faculty members in social science *vs.* life sciences departments. Differences in scale variable Release time (institutional strategy).

Table 51 *Continued*

Research Question	Key findings
7. How do demographics, self-perceived level of international and internationalization expertise and participation, priorities given to curriculum, and perceptions toward different academic program and institutional strategies for internationalization relate to one another?	Associations with demographic variables: • Gender with academic program strategy Infusion. • Duration of employment with self-perceived level of knowledge of and participation/ and perspectives on institutional strategies • Departmental affiliation with priorities for the undergraduate agricultural curriculum, perception of relevance, and perspective on academic program strategies Knowledge of and participation in international and internationalization activities was positively and linearly correlated with the perception of relevance of internationalization, and with the ratings for most of the academic program and institutional strategies. The perception of relevance and need for further internationalization was positively associated with appreciation of academic program and institutional strategies for the internationalization of the curriculum. Overall, ratings of academic program strategies were positively and linearly correlated with ratings of institutional strategies. Particularly, ratings of mobility strategies were positively and linearly correlated with institutional strategies involving funds, time, and recognition. Ratings of infusion strategies were positively and linearly correlated with institutional strategies involving intellectual support and recognition.

Table 51 *Continued*

Research Question	Key findings
8. Handling nonresponse error	There were significant differences between the results obtained regarding the value and scope of nonresponse error depending on the methodology used. The methods that detected more problems were those that included data from “double-dipped respondents” in the analysis. The analysis of nonresponse error for the data of this study revealed significant differences between respondents and double-dipped respondents.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

In this chapter, the researcher first presents a summary of the introduction to the dissertation, the methodology, and the findings. Then, the researcher summarizes the findings of the study together with their pertinent conclusions, organized to respond to the seven research questions of the study. Next, the researcher lists the implications of the study, and then finally presents the recommendations.

1. SUMMARY

The purpose of this study was to analyze perspectives of faculty in colleges of agriculture at selected land grant institutions regarding academic and institutional strategies for the internationalization of the undergraduate agricultural curriculum.

The case was analyzed with faculty in The College of Agricultural and Environmental Sciences of the University of Georgia [CAES-UGA], and The College of Agriculture and Life Sciences of Texas A&M University [COALS-TAMU]. The three objectives of the study were to:

1. Assess perspectives of faculty toward the internationalization of the undergraduate agricultural curriculum;
2. Analyze perspectives of faculty toward academic program strategies for the internationalization of the undergraduate agricultural curriculum, and
3. Analyze perspectives of faculty toward institutional strategies to enhance participation of faculty in the internationalization of the undergraduate agricultural curriculum.

The research questions developed to accomplish the purpose and objectives were:

1. What demographic characteristics of the respondents affect their perspectives on, and participation in, the internationalization of the undergraduate agricultural curriculum?
2. What are the faculty members' self-perceived level of international knowledge/expertise, participation in international activities, ability to internationalize the curriculum, and participation in curriculum internationalization efforts? What are the relationships between these variables?
3. What do the faculty of selected colleges of agriculture perceive to be priorities for the undergraduate agricultural curriculum? What is the level of priority given to internationalization? What do the faculty perceive to be the present status of the internationalization of the undergraduate agricultural curriculum at the two institutions surveyed?
4. How do the faculty in selected colleges of agriculture evaluate and prioritize different academic program strategies used for the internationalization of the curriculum?
5. How do the faculty in selected colleges of agriculture evaluate and prioritize different institutional strategies to support their efforts to internationalize the curriculum?
6. Are there significant differences between the results obtained at the two institutions surveyed?
7. How do demographics, self-perceived level of international and internationalization expertise and participation, priorities given to curriculum, and perceptions toward different academic program and institutional strategies for internationalization relate to one another?

1.1. Statement of the problem

In order to be prepared to live and compete in the dynamic workplace of an increasingly global and interdependent society, university students need to learn about and be exposed to the changing international environment. It is the duty of the higher education community to address *better* these needs (AIEA, 1995a; AAC, 1985; CIEE,

1988, 1990; Hawkins, Haro, Kazanjian, Merkx & Wiley, 1998; Mestenhauser & Ellingboe, 1998). Particularly, the agricultural, food, and environmental sciences have radically changed in recent decades and have stood out as playing an especially important role worldwide, socially, politically, and economically. Consequently, colleges of agriculture “will be asked to respond” (Kunkel, Maw & Skaggs, 1996, p. vii) and “aggressively globalize their teaching, research, and outreach programs” (Jischke, Topel & Acker, 1999, p. 7), not only to continue serving their students, and to serve them *better*, but also to serve society better as a whole (Acker, 1999; Acker & Scanes, 1998; Etling, 2001; Schuh, 1989, Thompson, 1995).

Many agree that “the curriculum is the most important element of a campus’s internationalization strategy” (ACE, 2002b; see also Fortin, 2001, Mestenhauser & Ellingboe, 1998). Faculty are often mentioned as the main drivers and actors of the efforts to internationalize teaching. It is surprising to note, however, that although most authors have recognized for decades the pivotal role of faculty in internationalization efforts in higher education programs, at the beginning of the 1990’s there still was not much written about the perceptions of faculty regarding the process (Carter, 1992). During the past decade, there has been a “gradual acceptance of the internationalization of higher education as an area of research" (de Wit, 2002, p. xvi), much has been written about internationalization, some research has been done, and a number of the issues involving internationalization are today very well documented. There is still little to be found, however, concerning the perspectives of random samples of faculty (as opposed to the perspectives of faculty directly involved in internationalization). Also, there is a need to update information on "what works most effectively and what priorities to follow" (AIEA, 1995a, p. 6).

The administrations of the College of Agricultural and Environmental Sciences [CAES] of the University of Georgia [UGA], and the College of Agriculture and Life Sciences [COALS] of Texas A&M University [TAMU] have stated that further internationalization of the curriculum is important to them. This study will provide specific insights into the perspectives of faculty of CAES and COALS toward different academic and institutional strategies for the internationalization of the undergraduate agricultural curriculum. As a result, the two colleges will have available a research-

based study to support planning and implementation efforts for the internationalization of the agricultural curriculum.

In addition, other interested practitioners, researchers, and college administrators will have available a model instrument to use and adapt to the analysis of the internationalization process at their own institutions.

1.2. Methodology

The target populations were CAES and COALS faculty with undergraduate teaching responsibilities. The samples consisted of all faculty in the sampling frame (census), which corresponded to 169 CAES faculty members and 270 COALS faculty.

To gather basic data, the researcher used a researcher-developed questionnaire (Appendix A), with three parts. Part I was designed to establish personal and professional characteristics of the respondents (demographics). Part II, using one to five Likert-type scales to quantify the answers, was prepared to assess the respondent's:

1. Self-perceived knowledge of and participation in international and internationalization activities;
2. Priorities for the agricultural curriculum, and perceived relevance, status, and need for further internationalization of the undergraduate agricultural curriculum;
3. Perspectives on different academic program strategies for the internationalization of the undergraduate agricultural curriculum, and
4. Perspectives on different institutional strategies to support faculty in their curriculum internationalization efforts.

Part III consisted of open-ended questions designed to provide an opportunity for the respondents to personalize, add to, or clarify answers given in Part II. Content and construct validity were established by two panels of experts at CAES and COALS. Questionnaire reliability was estimated by calculating the Cronbach's Alpha. The Cronbach Alpha for the reliability analysis of the different constructs of the study ranged between .6582 and .8833.

The questionnaires were posted on the web and available to be answered on-line. Respondents did not need any password to answer the questionnaire. A disadvantage of this system was that the researcher was not able to track nonrespondents. This detail restricted the researcher from adhering strictly to protocols and procedures proposed by Dillman (2000) to maximize response rate, limiting the number of follow-up letters that could be sent so as not to waste the time (and patience) of people who had already responded.

The potential respondents were first contacted by the Associate Dean of Academic Affairs of their respective colleges with a note asking them to respond to the questionnaire, and a link to the questionnaire and cover letter. They were contacted by e-mail twice more (six days and one month later) by the researcher, with reminder letters. Two months later, in an effort to increase response rate at CAES, the researcher undertook a systematic approach to visit as many as possible of faculty in the sampling frame and ask them to answer the questionnaire if they had not done so yet (double-dipping).

The responses received totaled 113 for CAES (67% response rate), and 80 for COALS (30%), for a grand total of 193 responses, and an overall response rate of 44%.

The quantitative data obtained from the questionnaire were analyzed using the *Statistical Package for the Social Sciences* (SPSS), version 11.5.1. The procedure *Descriptive statistics* was used to calculate frequencies, means, maximum and minimum values, and standard deviations of individual variables, and to measure symmetry (Cramer's V) in cross-tabulations. The procedure *Scale* (*Reliability analysis)* was used to determine the internal consistency of the measurement scales with the Cronbach Alpha. The procedure *Compare means* was used to perform *t*-tests of independent samples and one-way analysis of variance. The procedure *General linear models* (GLM) was used mostly with the repeated measures option, for comparison and separation of means, estimation of confidence intervals, regression analysis and parameter estimates, and calculation of Wilks' lambda in multivariate tests. The procedure *correlate (bivariate)* was used for correlation analysis, and the procedure *regression (linear)* was used to estimate bivariate linear regression coefficients. The probability level of statistical significance was set with an *a priori* alpha of $p < .05$.

To enhance and add richness to the study and complement the quantitative data, the researcher used a mixed-method approach, and included qualitative research methods, including four open-ended questions in the questionnaire and conducting eight semi-structured one-hour interviews designed to complement the data from the questionnaires. For the interviews, the researcher employed a purposeful sampling strategy. The researcher analyzed the data from the open-ended questions and the interviews following guidelines proposed by Lincoln and Guba (1985) for content analysis of qualitative data, including unitizing, categorizing, filling in patterns, and member checks. To establish trustworthiness for the qualitative part of the study, the researcher engaged in four techniques following suggestions by Lincoln and Guba (1985): 1. Information collection techniques that increase the probability of high credibility namely, prolonged engagement, persistent observation, and triangulation; 2. Peer debriefing; 3. Member checks, and 4. Use of a reflexive journal.

1.3. Findings

Table 51 outlined major findings of the study, which are discussed in summary fashion, together with their pertinent conclusions, in the conclusions section of this chapter. The more relevant findings included: Faculty knowledge of international issues was positively correlated with their participation in the internationalization process. Knowledge and participation were, in turn, positively correlated with faculty perceptions of relevance of internationalization of the curriculum, and with faculty acceptance of most of the proposed academic and institutional strategies for internationalization. Faculty ranked mobility and infusion approaches as their preferred academic strategies for internationalization of the curriculum, and there were clear patterns of associations between selections by faculty, with mobility and infusion belonging to different groups. When asked about incentives to participate in the internationalization process, faculty mentioned funds, “real” recognition, and release time as their foremost choices. Also, faculty expressed a need for increased leadership, vision, and focus for the process. When looking at the academic and institutional strategies together, various patterns of association also appeared.

2. CONCLUSIONS

The purpose of this study was to analyze perspectives of faculty in colleges of agriculture at selected land grant institutions regarding different academic and institutional strategies for the internationalization of the undergraduate agricultural curriculum.

This section summarizes the findings of the study together with their pertinent conclusions, organized to respond to the seven research questions of the study, as outlined above. An eighth section presents the results of the analysis and comparison of different procedures to assess nonresponse error, the specific results obtained for the data of this study, and the applicable conclusions.

2.1. Demographic characteristics of respondents

As with most survey research, it was considered important to have a general demographic description of the respondents so as to have an idea of the "respondents' framework." The characteristics included in the questionnaire were selected to provide a good picture of who the respondents were, and to assess the respondents' perspectives on, and participation in, the internationalization of the undergraduate curriculum.

The demographic characteristics of respondents were as follows: 83% male, 17% female. A total of 22% had been working at their current institution for less than four years, 30 % had worked between 4 and 14 years, and 48 % had worked for more than 14 years. For the length of employment in higher education, the percentages of these groups were 11 %, 31%, and 58% respectively. A total of 8% were in a non-tenure track position, 17% were on a tenure-track position but non-tenured, and 75% were tenured. A total of 5% were temporary faculty, 17% were assistant professors, 27% were associate professors, and 51% were full professors (Table 4).

Approximately one fourth spent less than 30% of their time in teaching, one fourth between 30% and 45%, one fourth between 45% and 60%, and the remaining fourth spent more than 60% of their time teaching. A total of 21% had administrative responsibilities and 79% did not (Table 4).

The vast majority (77%) of the faculty were in life sciences departments, with 22% in social science departments (Table 6).

In later sections of the chapter, the researcher reports on whether these demographic characteristics were associated with the research variables.

2.2. Knowledge of and participation in international and internationalization activities

The variables used to define knowledge of and participation in international and internationalization activities were self-perceived levels of 1. International knowledge (general) (M = 3.9206, SD = 0.86236), 2. Participation in international activities (general) (M = 3.37, SD = 1.077), 3. Ability to internationalize curriculum (M = 3.45, SD = 0.942), and 4. Participation in curriculum internationalization efforts (M = 3.12, SD = 1.055).

Key findings (depicted in Figure 11) were that the self-perceived level of knowledge was significantly higher than the self-perceived level of participation (in both general international issues and internationalization of the curriculum), and that both the knowledge of and participation in general international activities were significantly higher than the knowledge of and participation in curriculum internationalization activities, respectively.

There was also a significant linear relationship among the variables (Table 9). Specifically, greater knowledge was positively associated with participation. Further, knowledge of and participation in internationalization activities grew with higher levels of knowledge of and participation in general international issues and activities. No significant differences among the value of the regression parameters were found, which placed the same level of importance on each of the relationships.

The interpretation of these regression results supported views that investments in increasing the general international knowledge of faculty would eventually lead to an increase in faculty participation in curriculum internationalization activities (Backman, 1993; Ellingboe, 1997a; EUOIA, 1995; Graham, 1998; Hamrick, 1999; Leibold, 1997; Whalley, 1997), and refuted the notion that international knowledge was not linearly

related to participation in curriculum internationalization advances (Carter, 1992; Nolan, as cited by French, 1992).

Given these positive linear relationships, it was decided that all “knowledge and participation variables” could be put together in a single construct, “knowledge of and participation in international and internationalization activities” with a Cronbach Alpha for the reliability analysis of .8454.

It was concluded that:

1. Knowledge of and participation in international activities were higher than knowledge of and participation in curriculum internationalization efforts, and that knowledge was higher than participation, in both instances;
2. There was a positive linear relationship between faculty international knowledge, international involvement, and the ability to capitalize on their international knowledge and experience in curriculum changes and participation in internationalization activities (Backman, 1993; Ellingboe, 1997a; EUOIA, 1995; Graham, 1998; Hamrick, 1999; Leibold, 1997; Whalley, 1997). The value and significance of these three correlations were similar.

2.3. Priorities for the undergraduate agricultural curriculum and perception of status of the internationalization of the undergraduate agricultural curriculum

When asked to indicate, from their perspective, the level of priority and importance of emphasizing a set of skills, competencies, and experiences in the undergraduate agricultural curriculum, respondents ranked the options as follows, from least important to most (shown in parenthesis: Mean – on a 1 to 5 scale -, standard error, and Bonferroni’s groups of separation of means): 1. International awareness and/or experience (*M* = 3.31, *SE* = 0.0684, a), 2. Prior work and/or internship experience (*M* = 3.63, *SE* = 0.0608, b), 3. Computer skills (*M* = 3.67, *SE* = 0.0549, b), 4. Interpersonal skills (*M* = 4.05, *SE* = 0.0616, c), 5. Technical competency (*M* = 4.23, *SE* = 0.0475, cd), 6. Communication skills (*M* = 4.39, *SE* = 0.0556, d), and 7. Analytical skills (*M* = 4.58, *SE* = 0.0522, e) (*N* = 188) (Table 10 and Figure 12). These results were consistent with

much literature and many employers' reports emphasizing preference for graduates with good communication, analytical, and interpersonal skills, rather than highly competent technical experts, as indicated in the literature review (Boland & Akridge, 2003; Harvey, Moon, & Geall, 1997; Hayes, 1995b, Kranz, 1995; Moy, 2000; NAECR, 1989, as cited by Schneider & Suter, 1989; NACE, 2000 as cited by Ricketts & Rudd, 2002; Townsend & Kunkel, 1996).

The preceding analysis, in which international awareness and/or experience was ranked last, required respondents to compare and prioritize. To quantify respondents' perceptions of relevance of the internationalization of the undergraduate curriculum from a broader and more holistic perspective, the researcher used a new variable, Relevance, constructed from five different items of the questionnaire, in which some of the items were not based on "comparisons." The Cronbach Alpha for the reliability analysis of this construct was .8046. On a 1 to 5 scale, Relevance had a mean of 3.70, significantly higher than the 3.31 for international awareness in the prior list, and a standard deviation of 0.75028 (N = 191). Also, the researcher asked respondents to discuss the issue of relevance in both the open-ended questions of the questionnaire and in the interviews.

It was concluded that:

1. Faculty preferences and priorities for the undergraduate agricultural curriculum were similar to the ones expressed by most employers of graduates from colleges of agriculture (Boland & Akridge, 2003; Harvey, Moon, & Geall, 1997; Hayes, 1995b, Kranz, 1995; Moy, 2000; NAECR, 1989, as cited by Schneider & Suter, 1989; NACE, 2000 as cited by Ricketts & Rudd, 2002; Townsend & Kunkel, 1996), giving priority to analytical and communication skills;
2. When compared with other skills, competencies, and experiences, emphasizing international awareness/experience in the undergraduate agricultural curriculum ranked last on faculty priority lists. The rating given to "international awareness/experience" in these lists was significantly lower than the rating given to "relevance of internationalization." The tendency to compare and contrast issues often waters down the perception of relevance of internationalization, especially if

people view it as a mutually-exclusive alternative to other issues. This tendency to compare is dubbed in this dissertation as the “comparison dilemma.”

Another variable of interest was the measure of faculty perception of the status of the internationalization of the undergraduate agricultural curriculum at their institutions. The Cronbach Alpha for the reliability analysis of the construct was .7917. On a 1 to 5 scale, Status had a mean of 2.90 and a standard deviation of 0.95257 (*N* = 189). This was one of the lowest ratings given in the questionnaire.

Respondents were also asked if they thought that further internationalization of the undergraduate agricultural curriculum was necessary. On a 1 to 5 scale, this variable had a mean of 4.12, which represents a value between “somewhat” and “yes,” and a standard deviation of 1.079 (*N* = 185).

Faculty perception of relevance of curriculum internationalization was not correlated with the perception status of internationalization of the curriculum. On the other hand, the perception of relevance was linearly and positively correlated with their perceptions for need for further internationalization (*r* = .795, sig. = .000).

Therefore, based on the findings, the following conclusions emerged:

1. Individuals who placed high relevance on internationalization also perceived there to be a greater need for further internationalization;
2. The values of the means Relevance, Status, and Need for further internationalization, showed that further advancement in the internationalization of the undergraduate agricultural curriculum was possible.

In the open-ended questions and during the interviews, respondents were asked to indicate, in their opinion, the single most important reason why internationalization of the curriculum was *or* was not important. In most surveys, the respondents chose to give reasons why internationalization *was* important, and most answers were placed within the framework described in the literature review for rationales for internationalization of U.S. higher education, which included:

1. Academic rationale: Preparing students for productive careers and lives, and quality of the institution (Bremer & van der Wende, 1995; Ellingboe, 1997b; GASEPA,

1999; Johnson, von Bargen, & Schinstock, 1995; Knight & de Wit, 1999; Kunkel, Maw, & Skaggs, 1996; Shetty & Rudell, 2000);

2. U.S. economic and political competitiveness (ACE, 1996; Groennings & Wiley, 1990; Hamrick, 1999; Knight, 1997a; Leibold, 1997; Lyman, 1995);
3. Increasingly interdependent nature of the world (Bremer & van der Wende, 1995; Carter, 1992; Knight, 1997a; Rahman & Kopp; 1992);
4. Cultural and social issues: Diversity, peace, tolerance, humanitarian, and humanistic viewpoints (Knight, 1997b).

Respondents were also asked to comment on what, in their opinion, was the main reason why internationalization was *or* was not progressing.

It was concluded that, from the faculty perspective, the most important reasons for stagnation of the internationalization process were:

1. Lack of need;
2. Isolationist and provincial attitudes of faculty, students, and stakeholders (Boyer, 1994; Ellingboe, 1997a);
3. Lack of vision, leadership, and the associated lack of support (financial, personnel, time, recognition) from the college administration. According to some authors (EUOIA, 1995; John, Townsend, & Nelson, 1996; Harari, 1992; Nelson, 1996; Singha, Skaggs, & Nelson, 1994), these are some of the most important ingredients in the internationalization process;
4. Faculty lack of knowledge and limitations, also mentioned by Shetty and Rudell (2000);
5. Foreign language knowledge not being required in CAES, and the underlying message that goes with it;
6. Lack of flexibility of the curriculum, also noted in the literature by Wattiaux, Rowe, and Shapiro (2001);
7. Lack of consistency and communication among administration, faculty, and students;

8. Inadequate emphasis by advisors on having students participate in international experiences. This problem was also mentioned by Carter (1992).

2.4. Academic program strategies for the internationalization of the undergraduate agricultural curriculum

Even if one considers that internationalization should be a multifaceted effort, and only views individual strategies as small parts of a larger, integrated endeavor, eventually the time must come to look at specific strategies. Because not all approaches may be adequate in all cases, and resources are invariably finite, it is important to assess each choice according to the individual institution and faculty members who are going to be asked to participate in the process.

Many authors have written about internationalization strategies. In the survey to faculty, the strategies were separated into two conceptual groups: 1. Actions that directly affect, change, and internationalize the curriculum, collectively referred to as "academic program strategies," and 2. Programs to support faculty in their efforts to internationalize the curriculum, collectively referred to as "institutional strategies."

Faculty responding to the survey were asked to indicate which of the listed academic program strategies were "*the best uses*" of the college's resources (e.g., faculty time, personnel, funds) toward the support of the internationalization of the curriculum. The strategies were chosen to parallel the ones most commonly cited in the literature.

Respondents ranked the options as follows, from least important to most (shown in parenthesis: Mean – on a 1 to 5 scale -, standard error, and Bonferroni's groups of separation of means): 1. Technology and virtual mobility: Use of "distant" students, faculty, and resources (M = 3.03, SE = 0.07512, a), 2. On-campus, international subject matter courses (M = 3.08, SE = 0.06667, a), 3. Concentrations: "International" subject matter certificates, minors, and majors (M = 3.11, SE = 0.06638, a), 4. Internationalize campus environment: Increase number of international students and faculty, organization of workshops, discussions, and varied "social" activities of international subject matter (M = 3.30, SE = 0.07826, a), 5. Infusion: Integrating internationalized curriculum into existing on-campus courses (M = 3.68, SE = 0.06658, b), 6. Cohort

semester abroad, at a foreign university, but with faculty and students from home (*M* = 3.69, *SE* = 0.07284, b), 7. Short-term (2-5 weeks) study abroad courses: A cohort of students with faculty from “home (*M* = 3.81, *SE* = 0.06665, b), and 8. Semester exchange programs and internships: Individualized, students on their own (*M* = 3.93, *SE* = 0.06743, b) (*N* = 176) (Table 12 and Figure 13).

The analysis of correlations between ratings of different academic program strategies (Table 14) showed clear patterns of associations (Figure 14) between faculty preferences for different academic program strategies. Understanding of these associations might help in achieving program balance, by understanding how different faculty identify themselves with specific strategies and how they might use (or not use) different “aids” for them to internationalize the curriculum. For example, Table 14 and Figure 14 showed that infusion and mobility programs did not belong to the same “association group,” which could be an indication, for example, that by spending all resources in and targeting rewards to faculty who have active mobility programs, faculty favoring infusion strategies would “feel left out” (as also pervaded some responses to the open-ended questions) and, in consequence, one might find that infusion efforts would not flourish.

In addition, the interviews helped the researcher to understand better comparative advantages and disadvantages of semester-long exchange programs *vs.* short-term study abroad from the perspectives of faculty (although many faculty discussed what they thought was best from the perspective of students). Although most respondents agreed that the depth and breath of exchange programs was higher, with greater benefits to participating students, and they were “best uses of our resources,” they admitted to favoring short-term study abroad at a similar level. Some of the reasons for this contradiction were: 1. From an administrative perspective, short-term study abroad programs are the fastest way to accomplish internationalization numbers, and easiest to measure, 2. It is easier to get a student to participate in a short-term study abroad because these are more attractive, require less time investment, and student and family anxiety diminishes, 3. Short-term study abroad programs are one effective way to get “shy” students interested in longer international experiences, 4. Short-term study abroad programs fit best in an inflexible curriculum and do not increase graduation time, and 5.

Usually, short-term study abroad programs do not require knowledge of a foreign language.

Another important issue that came up from the qualitative data was the view of some faculty that participation in internationalization was not being rewarded or supported equally for all strategies. While participation in mobility programs was considered to be partly rewarded, supported, and funded, participation in infusion efforts was considered to be totally ignored. It was concluded that:

1. Respondents ranked academic program strategies in two priority groups, with the most useful strategies including the mobility strategies (ACE, 2000; Aitches & Hoemeke, 1992; IEE, 2003; Liverpool, 1995; van der Wende, 1994) and infusion (Backman, 1993; Faustman, Riesen, Suter, & Vietor, 1996; King & Martin, 1994; Navarro, 2003; Reiff, 1997; Sammons & Martin, 1997; Shetty & Rudell, 2000; Whalley, 1997). The second group included virtual mobility (Graham, 1998; Hibbs, 1997; Philson, 1998; van der Wende, 1998; Winters, 1997), on-campus courses (AIEA, 1995b; Allen, 1992; Baker, 1995; Freedman, 1998; Graham, 1998; Harari, 1989), concentrations (Virginia Tech, 1997), and internationalizing the campus environment (Aitches & Hoemeke, 1992; Bremer & van der Wende, 1995; Carter, 1992; Creekmore, 1995; Ellingboe, 1997a, 1997b; Guyon & Klasek, 1991; Flournoy, 1992; Harari, 1989; Liverpool, 1995; Shetty & Rudell, 2000);
2. There were clear patterns of association between groups of strategies, or faculty differential preferences among strategies;
3. Faculty perceived that rewards, support, and funds were not fairly distributed among faculty participating in the different strategies, with faculty participating in mobility strategies receiving most of the incentives and faculty participating in infusion efforts not being recognized at all. Etling (2001) noted the possibility of similar situations;
4. The control of the quality of the educational experience from the different internationalization programs was considered an important issue to address (English, 1998; USG-OIE, 2001; van der Wende, 1994);
5. When comparing long-term exchange programs with short-term study abroad programs, although most faculty agreed that exchange programs were the best

uses of our resources, and better learning experiences for the students, many rated both types of programs similarly because study abroad programs were more adaptable to the student's situations, needs, curriculum, time availability, requirements, and background knowledge.

2.5. Institutional strategies to support faculty in their efforts to internationalize the curriculum

Respondents were asked to indicate how much the strategies on the list could support them in their efforts to internationalize the courses and programs for which they were responsible. Respondents ranked the options as follows, from least important to most (shown in parenthesis: Mean – on a 1 to 5 scale -, standard error, and Bonferroni's groups of separation of means): 1. Intellectual support (internationalization specialist, availability of internationalized instructional materials, seminars and workshops for faculty) (*M* = 2.69, *SE* = 0.07328, a), 2. Collaboration with other faculty members (*M* = 3.43, *SE* = 0.06678, b), 3. Recognition of internationalization efforts in evaluation processes (salary increases, tenure, promotion) (*M* = 3.44, *SE* = 0.09178, b), 4. Release time (*M* = 3.45, *SE* = 0.09369, b), and 5. Funds to pay for sabbaticals, program development, and student participation in mobility programs (*M* = 3.84, *SE* = 0.06892, c) (*N* = 186) (Table 16).

Also, in both the interviews and the open-ended questions from the questionnaire, respondents indicated that the most attractive incentives for them to participate in the internationalization of the curriculum would be, in order of preference: 1. Funds to cover salary increases, sabbaticals, travel, preparation and participation in study abroad programs; funds to subsidize student participation in mobility programs, and funds to recruit international graduate students, 2. Recognition (in tenure, promotion, and salary increase evaluation processes). A point made by some respondents concerning recognition was that "all internationalization efforts [should] count toward tenure and promotion, not just the ones that give numbers [i.e., short-term study abroad programs]," 3. Release time from other responsibilities, 4. Increased leadership, vision, and direction for the internationalization process (more organization, directives, focus, and common goals and objectives), 5. A cultural change showing increased interest,

understanding, and enthusiasm for internationalization by administrators, faculty, students, and stakeholders, 6. Collaboration with other faculty members, and 7. Help in translating international knowledge into internationalization of the curriculum (e.g., faculty development programs, training, seminars, workshops, or examples of successful curriculum integration efforts), internationalization specialist and technical support staff, and increased availability of internationalized materials.

The “intellectual strategies” ranked last in the quantitative part of the study, and were also the ones mentioned least often. However, for some faculty, they were the most important and urgently needed measures. Also, these strategies are often cited in the literature as necessary elements for a successful internationalization process (Backman, 1993; Ellingboe, 1997a; EUOIA, 1995, Graham, 1998; Hamrick, 1999; Leibold, 1997; Lunde, 1995a; Whalley, 1997).

Consequently, the following five conclusions were drawn:

1. The institutional strategies to support faculty in their efforts to internationalize the curriculum preferred by faculty involved funds, recognition, and release time;
2. Institutional strategies involving funds included monies for sabbaticals, international opportunities for faculty, course development, infusion efforts, student participation in mobility programs, and recruitment of international students (ACE, 2002a; Lunde, 1995a; Shetty & Rudell, 2000; UGA-IFP, 2002);
3. Faculty were asking for “real recognition” of internationalization efforts at the university, college, and departmental level. Also, they were asking that this recognition should cover all types of programs, including mobility programs, infusion, and on-campus courses. Similar suggestions are found in the literature (AIEA, 1995b; Backman, 1993; Ellingboe, 1997a; EUOIA, 1995; Etling, 2001; Hamrick, 1999; Leibold, 1997; Liverpool, 1995; NASULGC, 1993; Shetty & Rudell, 2000);
4. Faculty expressed a need for increased leadership and vision to provide direction, organization and focus to the internationalization process. According to some authors (EUOIA, 1995; John, Townsend, & Nelson, 1996; Harari, 1992; Nelson,

1996; Singha, Skaggs, & Nelson, 1994), this is, in fact, one of the most important ingredients in the internationalization process;

5. Institutional strategies, including faculty collaboration and intellectual support, were ranked as least important by some faculty, but were completely necessary from the perspective of other faculty. Although not important for many of the faculty responding to the questionnaire, these strategies are often cited in the literature as necessary elements for a successful internationalization process (Backman, 1993; Ellingboe, 1997a; EUOIA, 1995, Graham, 1998; Hamrick, 1999; Leibold, 1997; Lunde, 1995a; Whalley, 1997).

2.6. Comparing UGA and TAMU results

The differences found between the College of Agricultural and Environmental Sciences (CAES) of the University of Georgia and the College of Agriculture and Life Sciences (COALS) of Texas A&M University (TAMU) were:

Demographics: Asymmetric distribution of Gender, with females being under-represented at CAES (12.5% *vs.* 24.1%) (Cramer's V = .150, sig. = .038), percentage of time spent teaching, with time teaching being higher at COALS (Figure 10) (Cramer's V = .429, sig. = .000), and percentage of faculty members in a social science department *vs.* a life sciences department, with social science departments being over-represented in COALS (29.9%) relative to CAES (17.6 %).

Scale variables: Institutional strategies to support faculty in their efforts to internationalize the curriculum. There are significant differences between institutions for variable Time, the variable representing the institutional strategy that would give to faculty release time from teaching (or other duties) to internationalize the curriculum, with faculty at COALS (M = 3.714, SD = 0.132) valuing the strategy more than the faculty at CAES (M = 3.266, SD = 0.127) (mean dif. = 0.46, SE dif. = 0.182, sig. t-test = .012). This difference, however, is less noteworthy than one would first think because in a more in-depth analysis, if one conducts a Bonferroni pairwise comparison of mean differences, in both cases I1 Time belong to the second (middle) group of significantly different groups of strategies, and, in both cases, I1 Time is significantly more highly

valued than I4 Intellectual, significantly less highly valued than I5 Funds, but “equally” valued as I2 Collaboration and I3 Recognition.

No other significant differences were found between CAES and COALS when comparing them for all the other variables studied in this research.

It was concluded that respondents in the two institutions were very similar in both their demographic characteristics and their perspectives about internationalization and strategies to support the internationalization process. The only differences found between CAES and COALS were, from a demographic perspective, a different distribution of respondent genders, percent of time spent teaching, and percentage of faculty members in social science departments *vs.* life sciences departments. Also, differences were found in faculty preferences for appreciation of the institutional strategy Release time to support faculty in their internationalization efforts.

2.7. Relationship between groups of variables

The researcher studied, through correlational studies, the relationship between variables. The key findings of this analysis are summarized below.

2.7.1. Associations with demographic variables

Males and females gave significantly different ratings to the academic program strategy Infusion (mean dif. = 0.624, *SE* dif. = 0.167, sig. = .000), with mean of 4.188 for females (*SE* = 0.151, 95% confidence interval lower bound = 3.889, upper bound = 4.486), and 3.563 for males (*SE* = .072, 95% confidence interval lower bound = 3.422, upper bound = 3.705). Also, the order in which strategies are ranked also changes, as well as the Bonferroni’s groups that appear to be significantly different when ordering these rankings (Table 28). The most relevant changes in the order of the rankings is that for female faculty the most valued strategy is A1 Infusion, while for male faculty members A1 Infusion is below the three mobility strategies.

Table 26 shows that the self-perceived level of knowledge of and participation in international and internationalization activities is significantly higher for faculty members

who have been between four and fourteen years at their respective institutions (*M* = 3.724, *SE* = 0.102, Bonferroni group b), than for faculty members who have been four or less years (*M* = 3.233, *SE* = 0.121, Bonferroni group a), or more than fourteen years (*M* = 3.552, *SE* = 0.082, Bonferroni group a) at their institutions.

The duration of a faculty member's employment at his/her present institution similarly influenced perspectives on institutional strategies (as a whole). The mean of the grouping variable for faculty who had been working four or fewer years at UGA/TAMU was 3.489 (*SD* = 0.125, Bonferroni group a), for faculty who had been working more than four but fourteen or less years was 3.664 (*SD* = 0.101, Bonferroni group b), and for faculty who had been working more than fourteen years was 3.187 (*SD* = 0.081, Bonferroni group a). Because the Wilks' lambda for the multivariate analysis of the vector grouping the institutional strategies and duration of a faculty member's employment was not significant, it is expected that a similar pattern is followed by the individual institutional strategies.

There were significant differences in the ratings of faculty members in life sciences departments *vs.* social science departments in their ratings of the Importance/interest in emphasizing in the undergraduate agricultural curriculum: Technical skills (df = 182, dif. = 0.384, *SE* dif. = 0.110, sig. = .001), International awareness and/or experience (df = 180, dif. = -0.335, *SE* dif. = 0.159, sig. = .037). In addition, the order in which the different skills, competencies, and experiences were ranked was also different, as well as the Bonferroni's significantly different groups that one obtains when ordering the rankings. These rankings were contrasted in Table 29.

The separation of means with independent sample *t*-tests revealed that there were significant differences between faculty in the two types of departments in their perception of Relevance (*t* = -2.070, df = 182, sig. = .040, mean dif. = -0.2674, *SE* dif. = 0.12919). The perception of relevance for faculty in life sciences departments was lower (*M* = 3.6516, *SD* = 0.76322, *N* = 142) than for faculty in social science department (*M* = 3.9190, *SD* = 0.63100, *N* = 42).

The *t*-tests also revealed that there were significant differences between faculty in different types of departments in their rating of the variable grouping all academic program strategies together (*t* = -2.642, df = 180, sig. = .009, mean dif. = -0.2352, *SE*

dif. = 0.08904). This result means that there were significant differences between faculty's perceptions about the value of the academic program strategies *per se* depending on the type of department in which they were located. Faculty in life sciences departments had significantly less appreciation for the academic program strategies (*M* = 3.3946, *SD* = 0.50172, *N* = 140) than faculty in social science departments (*M* = 3.6298, *SD* = 0. 52074, *N* = 42). The fact that Wilks' lambda of the multivariate analysis was not significant indicated that the same pattern was to be expected for all academic program strategies.

It was concluded that the demographic characteristic that was associated with most differences between groups of faculty was their affiliation with a social science department or a life sciences department. Differences were in their priorities for the curriculum, perception of relevance of internationalization, and preferences for the academic program strategies. Other demographic characteristics that were associated with some differences between groups of faculty were gender and duration of employment at their respective institutions.

2.7.2. Associations with knowledge of and participation in international and internationalization activities

The perception of relevance of internationalization increased with increasing level of knowledge and participation (slope estimate of the linear regression = 0.542, sig. = .000, *N* = 185). This was consistent with the arguments of some internationalization scholars (Shetty & Rudell, 2000).

The ratings of all the academic program strategies increased with increased level of knowledge and participation (Table 32). For the construct that grouped together all the academic program strategies, the slope estimate of the linear regression was .238 (sig. = .000) (*N* = 189).

Faculty appreciation for the institutional strategies to support them in their internationalization efforts did not increase homogeneously for all the strategies with increased level of knowledge and participation (Wilks' lambda = .536, sig. = .004, *N* = 186). There was a positive linear relationship for all the strategies except for the

strategy concentrating on intellectual support (Table 34). For the construct that groups together all the institutional program strategies, the slope estimate of the linear regression was .346 (sig. = .000) (*N* = 188).

It was concluded that high knowledge of and participation in international and internationalization activities of respondents was associated with high perception of relevance and high appreciation for most of the academic program and institutional strategies to support internationalization (Shetty & Rudell, 2000).

2.7.3. Associations with relevance and status of internationalization of the undergraduate curriculum, and perceived need for further internationalization

For the variable grouping all academic program strategies together, the slope estimate of the linear regression with perception of relevance was positive and significant (slope estimate = .408, sig. = .000, *N* = 189), nonsignificant with perception of status (slope estimate = -.026, sig. = .508, *N* = 188), and positive and significant with need for further internationalization (slope estimate = .275, sig. = .000, *N* = 185).

For the variable grouping all institutional strategies together, the slope estimate of the linear regression with perception of relevance was positive and significant (slope estimate = .575, sig. = .000, *N* = 188), with perception of status, it was negative and significant (slope estimate = -.118, sig. = .049, *N* = 186), and with need for further internationalization it was positive and significant (slope estimate = .367, sig. = .000, *N* = 183).

It was concluded that the perception of relevance and need for further internationalization was positively associated with appreciation of academic program and institutional strategies for the internationalization of the curriculum.

2.7.4. Associations between academic program strategies and institutional strategies

The correlation analysis (2-tailed) between the construct grouping all academic program strategies and the construct grouping all institutional strategies showed that the two variables were highly correlated (r = .583, sig. = .000, N = 187).

From a practical standpoint, however, it is more important to know if faculty preferences for a specific academic program strategy are predictive of their choice of institutional strategy. Similarly, implementation of particular institutional strategies could be predictive of the directions in which academic programs are likely to develop. Table 46 showed the correlations between the eight different academic program strategies and the five types of institutional strategies that were helpful in this exploration.

The ratings of the mobility strategies were significantly and positively correlated with the institutional strategy that called for funds; that was positively correlated with all other academic program strategies except for Infusion. The ratings of the mobility strategies were also correlated with the institutional strategy that called for release time, that was, again, not correlated with infusion. Infusion was correlated with the institutional strategy calling for intellectual support, which was not correlated with two of the mobility strategies. These two very different patterns were an indication of differences in the dynamics for increasing internationalization of the curriculum by taking either of the two academic approaches, and how concentrating on one approach might cause stagnation of the other approach.

Both infusion and mobility strategies were positively correlated with the institutional strategy that called for recognition of internationalization efforts in the evaluation processes. Along these lines, it is important to note that many respondents indicated in their answers to the open-ended questions of the questionnaire that not only was it important to assure that internationalization efforts were properly recognized, but that *all types of* internationalization efforts were recognized.

These findings reiterate other results cited in the literature review, namely, that there is not a single best approach to internationalization, but that multiple complementary strategies are needed to make a better whole (Brock, 1993; Ellingboe, 1997a, 1997b; Kezar, 2000; Kwok & Arpan, 1994; Mestenhauser & Ellingboe, 1998; Shetty & Rudell,

2000; Whalley, 1997). As one of the respondents put it: “This is no small project and it can never be complete.”

The following conclusions were warranted:

1. Faculty tendency to rate highly the academic program strategies coincides with the tendency to rate highly the institutional strategies;
2. There were association groups between academic program strategies and institutional strategies; that is, faculty preferences for one or another academic program strategy were translated into preferences for different institutional strategies. For example, faculty favoring mobility strategies preferred funds, time, and recognition. Faculty favoring infusion preferred intellectual support and recognition;
3. Faculty asked for recognition to be tangible at the university, college, and departmental levels, and that it be applied to all internationalization efforts. Similar suggestions are found in the literature (AIEA, 1995b; Backman, 1993; Ellingboe, 1997a; EUOIA, 1995; Etling, 2001; Hamrick, 1999; Leibold, 1997; Liverpool, 1995; NASULGC, 1993; Shetty & Rudell, 2000);
4. There is not a single best approach to internationalization; consequently, multiple complementary strategies are needed to make a better whole (Brock, 1993; Ellingboe, 1997a, 1997b; Kezar, 2000; Kwok & Arpan, 1994; Mestenhauser & Ellingboe, 1998; Shetty & Rudell, 2000; Whalley, 1997).

2.8. Handling nonresponse

One of the sources of error in survey research studies is nonresponse error (Dillman, 2000), which “exists to the extent that people included in the sample fail to provide usable responses and are different than those who do on the characteristics of interest in the study” (Lindner, Murphy, & Briers, 2001, p. 44). As this error increases, “the results and recommendations of that study become increasingly suspect and decreasingly valuable as evidence of the characteristic in the target population or in other audiences” (Lindner, Murphy, & Briers, 2001, p. 43). It is, therefore, very important to handle nonresponse appropriately.

The overall response rate from this study was 44% (30% at TAMU and 67% at UGA). According to Miller and Smith (1983), nonresponse error is a threat to generalizability even with response rates of 90%, and, according to Lindner, Murphy and Briers (2001), with any response rate different from 100%. In this research, therefore, external validity is seriously threatened and there exists a need to handle nonresponse error appropriately.

In an effort to handle nonresponse error, the researcher used and compared different procedures cited in the literature as appropriate to handle nonresponse.

The four methods used for this particular analysis were:

1. Compare early to late respondents, defining the groups by separating the first half of respondents from the second. This was done twice, first considering all respondents, and second eliminating the “double-dipped respondents” (those who only responded after personal visits and requests);
2. Compare respondents with “nonrespondents” (or double-dipped respondents, as called in this study and as explained above);
3. Compare waves of respondents. As was done when comparing early to late respondents, this analysis was performed twice, first considering all respondents and second eliminating the “double-dipped respondents;”
4. Use ’days to respond’ as a regression variable. As for earlier comparisons, this analysis was also done twice.

The comparisons were made for all variables, demographic and scale (Likert-type responses), with different statistical procedures. In the analysis for the demographic variables, the researcher used symmetry measures (Cramer’s V) (Table 47), and for the scale variables, the researcher used *t*-tests (early *vs.* late respondents and respondents *vs.* “double-dipped respondents”), ANOVAs (waves of responses), and regressions (Table 48).

The results from Table 47 indicated that one should not expect demographic differences among respondents and nonrespondents: The Cramer’s V was nonsignificant in all cases, regardless of the comparison made.

In Table 48, in *t*-tests comparing early *vs.* late respondents (50% of respondents for each group), when considering only respondents who answered written communications, none of the comparisons were significant. Therefore, the assessment of nonresponse error based on the concept that late respondents are similar to nonrespondents would not have found potential differences between respondents and nonrespondents, and would have disregarded the threat of nonresponse error.

The outcome was very different, however, if one performed any of the other analyses: 1. For early *vs.* late respondents with double dipped respondents, there were significant differences between the groups in participation in international activities, and knowledge and participation in international and internationalization activities, 2. for respondents *vs.* double-dipped respondents, there were significant differences between the two groups in eight variables, 3. When comparing waves (with and without double-dipped respondents), there were significant differences in two variables, and 4. When using regression analysis, if not using double-dipped respondents, there were differences between groups in two variables, and, if using all respondents, there were differences in eight variables (same pattern as with comparison of respondents *vs.* double-dipped respondents).

In summary, according to the results and patterns compared in this analysis, the assessment of nonresponse error was more accurate when using double-dipped respondents. A *t*-test between respondents and double-dipped respondents is an adequate method of analysis, and probably the simplest. In addition, if “days to respond” are available, a regression using days to respond as the regression variable might provide additional information about the details of the difference between respondents and nonrespondents.

In terms of this particular study, the assessment of nonresponse error using information provided by more than one method indicates that there is, in fact, a high probability of nonresponse error, and therefore, the study’s external validity and generalizability are threatened. Particularly, there is a high probability of differences between respondents and nonrespondents in “knowledge variables” (International knowledge/expertise, participation in international activities, ability to internationalize the

curriculum, and the construct that puts together all of these variables: Knowledge and participation in international and internationalization activities).

It was concluded that, in this study,

1. There were significant differences between the results obtained on the value and scope of nonresponse error depending on the methodology used. The methods that detected more nonresponse error problems were those that included data from "double-dipped respondents" (also called "reluctant respondents" or "assumed nonrespondents") in the analysis;
2. Comparing early *vs.* late respondents (without the use of double-dipped respondents) would not have been a good method to assess nonresponse error;
3. Comparisons only involving demographic characteristics would not have been a good method to assess nonresponse error;
4. The best method to assess nonresponse error was the comparison, for all variables (demographic and scale), of respondents *vs.* double-dipped respondents. In addition, the regression analysis using "days to respond" as a regression variable with the same data provided additional information to interpret the results from the comparison of respondents *vs.* double-dipped respondents;
5. The results were threatened by nonresponse error. In consequence, this research has limited external validity and the results and recommendations of this study are not to be generalized to the entire population without caution.

3. IMPLICATIONS

The study has the following implications:

1. Some faculty may lack knowledge and experience in international issues and activities (Shetty & Rudell, 2000). The level of knowledge of and participation in international activities may be a limiting factor for faculty participation in curriculum internationalization activities (Harari, 1992; Leibold, 1997; Shetty & Rudell, 2000). A high number of faculty may have a considerable lack of knowledge and experience in international issues and activities (Shetty & Rudell, 2000);

2. Investing in increasing faculty international knowledge and international involvement (e.g., facilitating and providing for sabbaticals, faculty exchanges, and other international opportunities) and in faculty development to increase their ability to capitalize on their international knowledge and experience in curriculum changes and internationalization (e.g., seminars, workshops, and one-on-one consultations) may have the potential to increase faculty participation in internationalization activities and enhance the curriculum internationalization process (Backman, 1993; Ellingboe, 1997a; EUOIA, 1995; Graham, 1998; Hamrick, 1999; Leibold, 1997; Whalley, 1997). A balance between efforts may be the best strategy to follow. In addition, increased knowledge and international involvement also translate into increased appreciation for most of the academic program and institutional strategies to support internationalization;
3. Curriculum internationalization efforts could be best designed and accepted by faculty, students, and employers if integrated with curriculum development changes to enhance student development of analytical and communication skills, a change called for by faculty and employers (Boland & Akridge, 2003; Harvey, Moon, & Geall, 1997; Hayes, 1995b, Kranz, 1995; Moy, 2000; NAECR, 1989, as cited by Schneider & Suter, 1989; NACE, 2000 as cited by Ricketts & Rudd, 2002; Townsend & Kunkel, 1996);
4. If not given other perspectives and reasonings, people often view internationalization as a mutually-exclusive alternative to other issues. This tendency to compare is dubbed in this dissertation as the “comparison dilemma.” Because of this, it is important to present internationalization as a synergistic *process* embedded in all programs, as a necessary ingredient in everything we do, rather than an additive, another discipline or focus, or a mutually-exclusive alternative;
5. One of the problems of internationalization is the lack of clarity of its significance, rationale, benefits, relevance, and implications to students, faculty, and other stakeholders. To enhance the process, it is important to clearly define them;
6. The isolationist and provincial attitudes of some faculty (Boyer, 1994; Ellingboe, 1997a), and the perceived lack of need for internationalization by many faculty,

students, administrators, and other stakeholders may be an obstacle for the advancement of the internationalization process;

7. Increasing faculty perception of relevance of internationalization increases the perceived need for further internationalization, which in turn increases the willingness to participate in the process. In addition, increased perception of relevance and need for further internationalization also translate into increased appreciation for most of the academic program and institutional strategies to support internationalization;
8. Respondents perceived that one of the most important obstacles for the process of internationalization of the agricultural curriculum in the two colleges surveyed is the lack of leadership, guidance, vision, focus, coordination, organization, structure, and support provided by the college administration to support the process. According to some authors (EUOIA, 1995; John, Townsend, & Nelson, 1996; Harari, 1992; Nelson, 1996; Singha, Skaggs, & Nelson, 1994), these are, in fact, some of the most important ingredients in the internationalization process. Perceived lack of consistency and communication among administration, faculty, and students was also perceived as an obstacle for the advancement of the internationalization process;
9. Some obstacles for student participation in long-term international opportunities for consideration are:
    a. Lack of requirement of knowledge of a foreign language in CAES;
    b. Lack of flexibility in the CAES and COALS curriculum (e.g., time sequence of required classes, full curriculum, few electives) and lack of adaptability of long-term international experiences into the student's program of study (Wattiaux, Rowe, & Shapiro, 2001);
    c. Few choices, alternatives, and adequate agriculture-specific long-term opportunities;
    d. Low and late emphasis in recruiting students for long-term international opportunities, and inadequate emphasis by advisors (Carter, 1992);

10. Respondents consider most useful and would be more willing to participate in academic program strategies that involve infusion efforts (Backman, 1993; Faustman, Riesen, Suter, & Vietor, 1996; King & Martin, 1994; Navarro, 2003; Reiff, 1997; Sammons & Martin, 1997; Shetty & Rudell, 2000; Whalley, 1997) and mobility of students, which include long-term exchange and internship programs, and long-term and short-term cohort study abroad programs (ACE, 2000; Aitches & Hoemeke, 1992; IEE, 2003; Liverpool, 1995; van der Wende, 1994). The strongest advantage of infusion is considered to be its capacity to affect all students (Acker, 1989; Faustman, Riesen, Suter, & Vietor, 1996; Harari, 1989, 1992; Kwok & Arpan, 1994; Reiff, 1997; Shetty & Rudell, 2000; Tonkin & Edwards, 1981);
11. Respondents showed less support for academic program strategies involving virtual mobility (Graham, 1998; Hibbs, 1997; Philson, 1998; van der Wende, 1998; Winters, 1997), on-campus courses (AIEA, 1995b; Allen, 1992; Baker, 1995; Freedman, 1998; Graham, 1998; Harari, 1989), concentrations (Virginia Tech, 1997), and internationalizing the campus environment (Aitches & Hoemeke, 1992; Bremer & van der Wende, 1995; Carter, 1992; Creekmore, 1995; Ellingboe, 1997a, 1997b; Guyon & Klasek, 1991; Flournoy, 1992; Harari, 1989; Liverpool, 1995; Shetty & Rudell, 2000);
12. Respondent preferences for the different academic program strategies are diverse, and tend to fall into “preference groups.” That is, for example, faculty indicating that mobility programs are their highest choice, tend to rate infusion efforts lower than the average respondent, and *vice versa*;
13. Respondents perceived that rewards, support, and funds were not fairly distributed among faculty participating in the different strategies, with faculty participating in short-term mobility strategies receiving most of the incentives and faculty participating in infusion efforts not being recognized at all. Etling (2001) noted the possibility of similar problems when discussing the reward system for internationalization;
14. The control of the quality of the educational experience of the different internationalization programs is an important issue to address (English, 1998; USG-OIE, 2001; van der Wende, 1994);

15. There is no single best approach to internationalization. Internationalization should be a multifaceted effort of curricular reform, which implies that a variety of academic program strategies should be implemented in a balanced and synergistic manner, and with a holistic perspective (Brock, 1993; Ellingboe, 1997a, 1997b; Foster, 1999; Kezar, 2000; Kwok & Arpan, 1994; Mestenhauser & Ellingboe, 1998; Shetty & Rudell, 2000; Whalley, 1997);
16. To enhance the internationalization process, faculty perceived that more support is needed from the administration. To sustain a variety of academic program strategies, this support should include multiple and complementary approaches and be a balance of many different institutional strategies. The strategies most commonly cited by respondents are:
    a. Funds and grant programs (ACE, 2002a; Lunde, 1995a; Shetty & Rudell, 2000; UGA-IFP, 2002), which are mostly needed to fund sabbaticals, international opportunities for faculty, study abroad preparation and implementation, curriculum development, student participation in mobility programs, and recruitment of international students;
    b. Recognition, which needs to be tangible at the university, college, and departmental level, and needs to cover all types of programs, including mobility and infusion programs, as well as on-campus courses. Similar suggestions are found in the literature (AIEA, 1995b; Backman, 1993; Ellingboe, 1997a; EUOIA, 1995; Etling, 2001; Hamrick, 1999; Leibold, 1997; Liverpool, 1995; NASULGC, 1993; Shetty & Rudell, 2000);
    c. Release time;
    d. Other types of “individualized support” such as intellectual support (ready-to-use materials, curriculum development workshops, internationalization consultation experts), and support staff. Although not the most important group of strategies for most of the faculty responding the questionnaire, the intellectual support strategies are often cited in the literature as necessary elements for a successful internationalization process (Backman, 1993; Ellingboe, 1997a; EUOIA, 1995, Graham, 1998; Hamrick, 1999; Leibold, 1997; Lunde, 1995a; Whalley, 1997);

17. There are differences between faculty in social science departments and faculty in life sciences departments regarding perceptions about internationalization and preferences for different strategies to support the internationalization process. Differences in also exist between different genders and faculty having different durations of employment;
18. Different institutional strategies are needed to support a variety of academic program strategies because faculty preferences for one or another academic program strategy are also translated into preferences for different institutional strategies. For example, faculty favoring mobility strategies prefer funds, time, and recognition. Faculty favoring infusion prefer intellectual support and recognition;
19. When assessing the nonresponse error and analyzing the results obtained using the methodology proposed by agricultural and extension education researchers (Miller, 1998; Miller & Smith, 1983; Lindner, Murphy & Briers, 2001), as well as new variants of it, the following implications exist:
    a. There were significant differences between the results obtained on the value and scope of nonresponse error, depending on the methodology used. Most differences appeared when comparing results using double-dipped respondents (also called “reluctant respondents” or “assumed nonrespondents”) *vs.* results not using double-dipped respondents;
    b. Comparison of early *vs*. late respondents (without the use of data from double-dipped respondents) is not always a good method to assess nonresponse error;
    c. Any method to assess nonresponse error should involve both demographic and scale variables;
    d. The methods that detected more nonresponse error problems (were more conservative) were those that included data from “double-dipped respondents” in the analysis. A good method to assess nonresponse error is the comparison, for all variables, demographic and scale, of respondents *vs.* double-dipped respondents. In addition, the regression analysis using “days to respond” as a regression variable with the same data provides additional information by which

to interpret the results from the comparison of respondents *vs.* double-dipped respondents;

20. Because the results of this research have limited external validity, an implication exists that only with great caution can the results and recommendations applicable to the respondents of this study be generalized to the entire population or to other populations.

4. RECOMMENDATIONS

Based on the study, the following recommendations are made:

1. To enhance and increase participation of faculty in the process of internationalization of the undergraduate agricultural curriculum, CAES and COALS administrations should:
    a. Invest in faculty development efforts, balancing between programs seeking to increase faculty international knowledge and activities (e.g., sabbaticals, faculty exchanges, and other international opportunities) (Shetty & Rudell, 2000), and programs to increase their curriculum development skills and curriculum internationalization abilities (e.g., courses, seminars, workshops, and one-on-one consultations) (Backman, 1993; Ellingboe, 1997a; EUOIA, 1995; Graham, 1998; Hamrick, 1999; Leibold, 1997; Whalley, 1997);
    b. Invest in programs to reduce isolationist and provincial attitudes of faculty, students, and stakeholders (Boyer, 1994; Ellingboe, 1997a);
    c. Invest in programs to increase faculty (and students) understanding of, perception of, relevance of, and need for further internationalization;
    d. Diversify and balance funds, support, recognition, and release time among faculty participating in different academic program strategies, including emphasis in (but not limiting it to) mobility and infusion efforts;
    e. Provide a wide variety of opportunities and support for faculty with special needs (e.g., collaboration efforts, intellectual support, etc.);

2. To increase acceptance and support for internationalization by most stakeholders (students, faculty, administrators, taxpayers, policy makers), internationalization leaders should present internationalization of the agricultural curriculum as:
    a. A curriculum-improvement process with defined purpose, objectives, clear rationale and significance, benefits, relevance, and implications;
    b. Part of a curriculum-improvement process integrated with changes that seek to update the curriculum and enhance student development of analytical and communication skills, a change called for by faculty and employers (Boland & Akridge, 2003; Harvey, Moon, & Geall, 1997; Hayes, 1995b, Kranz, 1995; Moy, 2000; NAECR, 1989, as cited by Schneider & Suter, 1989; NACE, 2000 as cited by Ricketts & Rudd, 2002; Townsend & Kunkel, 1996);
    c. A *process* embedded in all programs, a necessary ingredient in everything we do, rather than an additive, another discipline or focus, or a mutually-exclusive alternative;
3. CAES and COALS should have a series of planning and brainstorming sessions (with students, faculty, administration, and other stakeholders) to:
    a. Agree upon a common definition and explanation for internationalization, and spell out its rationale, purpose, objectives, significance, benefits, relevance, and implications;
    b. Prepare materials to publicize and spread the word of the importance of internationalization. These documents should appeal to the needs of the different stakeholders, including students and their families, administrators, faculty, tax payers, and policy makers;
    c. Set up a coordinated and focused college plan for internationalization that takes into account the different needs, perceptions, preferences, abilities, and resources of the groups and people involved in and affected by the process. Special attention should be given to the particular needs of the students and their programs of study, and to the differences in preferences among faculty. Some faculty characteristics that should be considered are Departmental

affiliation (social science departments *vs.* life science departments), gender, and duration of employment;

d. Prepare a quality, multifaceted effort of curricular reform, with a variety of academic program and institutional strategies implemented in a balanced and synergistic manner. Some of the academic program strategies to consider in the planning process are mobility strategies (ACE, 2000; Aitches & Hoemeke, 1992; IEE, 2003; Liverpool, 1995; van der Wende, 1994), infusion (Backman, 1993; Faustman, Riesen, Suter, & Vietor, 1996; King & Martin, 1994; Navarro, 2003; Reiff, 1997; Sammons & Martin, 1997; Shetty & Rudell, 2000; Whalley, 1997), virtual mobility (Graham, 1998; Hibbs, 1997; Philson, 1998; van der Wende, 1998; Winters, 1997), on-campus courses (AIEA, 1995b; Allen, 1992; Baker, 1995; Freedman, 1998; Graham, 1998; Harari, 1989), concentrations (Virginia Tech, 1997), and internationalizing the campus environment (Aitches & Hoemeke, 1992; Bremer & van der Wende, 1995; Carter, 1992; Creekmore, 1995; Ellingboe, 1997a, 1997b; Guyon & Klasek, 1991; Flournoy, 1992; Harari, 1989; Liverpool, 1995; Shetty & Rudell, 2000);

4. To enhance the internationalization process, administrators in CAES and COALS should:

   a. Be more involved in the process and provide more leadership, guidance, focus, coordination, organization, structure, and support to the process and the people involved in it (EUOIA, 1995; John, Townsend, & Nelson, 1996; Harari, 1992; Nelson, 1996; Singha, Skaggs, & Nelson, 1994);

   b. Increase consistency and communication among administration, faculty, and students about internationalization issues;

   c. Increase provision of funds, support, and rewards to the internationalization process;

   d. Have programs to increase the perceived relevance of internationalization among faculty, students, administrators, and other stakeholders;

e. Establish a quality control process to assure quality of the educational experience provided by the different programs internationalization programs (English, 1998; USG-OIE, 2001; van der Wende, 1994);

5. In order to enhance the process of internationalization and to demonstrate to faculty that support is being provided, provision of funds, support, and rewards for internationalization should be ample, diverse, and balanced between programs and academic program strategies. It is recommended further that this support should include multiple and complementary approaches because the strategies most commonly mentioned by respondents as being needed were as follows:

   a. Funds, which should be distributed in a balanced manner to fund sabbaticals, international opportunities for faculty, study abroad preparation and implementation, curriculum development efforts, student participation in mobility programs, and recruitment of international students (ACE, 2002a; Lunde, 1995a; Shetty & Rudell, 2000; UGA-IFP, 2002);

   b. Recognition, which should be “real” at the university, college, and departmental level, and should cover all types of programs, including mobility and infusion programs and on-campus courses. Similar suggestions are found in the literature (AIEA, 1995b; Backman, 1993; Ellingboe, 1997a; EUOIA, 1995; Etling, 2001; Hamrick, 1999; Leibold, 1997; Liverpool, 1995; NASULGC, 1993; Shetty & Rudell, 2000);

   c. Release time;

   d. Other types of “individualized support” such as intellectual aid (ready-to-use materials, curriculum development workshops, internationalization consultation experts), and specialized support staff (Backman, 1993; Ellingboe, 1997a; EUOIA, 1995, Graham, 1998; Hamrick, 1999; Leibold, 1997; Lunde, 1995a; Whalley, 1997);

6. To increase student participation in long-term international opportunities, CAES and COALS should:

   a. Reconsider having a foreign language requirement, or, in its absence, offer “real” alternatives to students who choose to take foreign languages;

b. Allow for flexibility in the curriculum requirements of students wanting to be part of long-term international opportunities so that their participation adapts to their program of study and does not increase their graduation time (Wattiaux, Rowe, & Shapiro, 2001);

c. Offer a wide variety of adequate agricultural specific long-term opportunities (e.g., exchange programs in agricultural schools that would provide courses that would be direct substitutes of departmental and college-required courses) that adapt well to the student's program of study and do not translate into a delay in graduation date;

d. Start the "recruitment" efforts on the first day of student contact with the college, and work with advisors to increase their emphasis about the importance and advantages for students to participate in international experiences (Carter, 1992);

e. Make long-term international opportunities more accessible and attractive for students (e.g., provide ample information for the students and their families, fund student costs, provide linked opportunities, reduce stress levels, help in adapting programs into the student's program of study, etc.);

7. To enhance the planning and implementation of internationalization efforts in other colleges of higher education, it is recommended that a research study be carried out similar to the one presented in this dissertation, adapted to the local situation and needs. If anyone is interested in building upon this particular research, the following suggestions are given:

   a. The questionnaire should not be used as presented in this dissertation. It should be revised and adapted to the particularities of the institution where it is to be used. For example, an exploration and analysis of the target institution is necessary to decide, for example, if the strategies listed are adequate for the specific characteristics of the institution. Once a revised questionnaire is drafted, it is recommended that the researchers carry out a pilot test and a precursor Delphi study to establish the appropriateness of the constructs;

b. The survey research methodology used should be changed, and protocols and procedures used should be more parallel to those proposed by Dillman (2000). For example, the researcher should use a system that allows tracking of nonrespondents (e.g., assigning a password to each potential respondent), and more follow-up letters should be sent to nonrespondents. At this time, the researcher would recommend using the "no password" system, with which the tracking of respondents is not possible, only in cases where the information provided in the questionnaire by the respondents is of such a delicate matter that the researcher estimates that people would not be willing to respond if they believed there was the smallest possibility of being identified with their specific response;

c. It is important to retain open-ended questions and to perform interviews after the preliminary analysis of quantitative data so that the interviews can be used to further understand the results from the quantitative data;

8. Researchers trying to assess nonresponse error should:

   a. Clearly define the methodology used. In addition to the methods most frequently used in agricultural and extension education research by researchers (Miller, 1998; Miller & Smith, 1983; Lindner, Murphy & Briers, 2001), if possible, the researcher should use double-dipped respondents (also called "reluctant respondents" or "assumed nonrespondents");

   b. Use extreme caution with their conclusions if using the typical method of comparing early *vs.* late respondents, especially if not using data from double-dipped respondents;

   c. Use both demographic and scale variables, regardless of the statistical analysis performed, comparison done, or the type of respondents used;

   d. Include in the analysis data from "double-dipped respondents." If possible, researchers should use the comparison, for all variables, demographic and scale, of respondents *vs.* double-dipped respondents. In addition, use the regression analysis using "days to respond" as a regression variable with the

same data for additional information to interpret the results from the comparison of respondents *vs.* double-dipped respondents;

9. Given the restrictions on generalizability of this study, if information about these variables is desired for other populations, it is recommended to develop the research with the specific population of interest;

10. Recommendations for further research:

    a. Carry out similar studies at other institutions, adapted to the particularities and needs of each institution. Some of these studies could more in-depth analysis of specific topics addressed in this dissertation such as, for example, the relationship between the different components of the construct “knowledge of and participation in international and internationalization activities,” and the strategies to increase each of them;

    b. Carry out a pilot test and a Delphi study using faculty teaching undergraduate agricultural courses and internationalization experts as two different groups, and compare the constructs obtained by the two groups, both conceptually and numerically. This study could also serve as a precursor of a new and improved questionnaire to be used at other institutions;

    c. Agricultural and extension education researchers should conduct more research in and about the theory, techniques, and methods for the assessment and handling of nonresponse error.

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APPENDIX A

QUESTIONNAIRE (COALS VERSION)

Factors Affecting Participation of Faculty in the Internationalization of the Undergraduate Agricultural Curriculum

Note: Internationalization of the curriculum may be defined in different ways, accomplished at varying degrees of satisfaction, and through different methods. For the purpose of this study, internationalization of the curriculum is "the **process** of integrating international and global dimensions and perspectives into the formal (structure, content, and materials) and operational (teaching and learning methods, grouping of students, place, and time) aspects of the curriculum."

Personal information:

1 What is your gender? O female O male

2 How many years have you been working in a **Texas A&M** faculty position? _____

3 How many years have you worked in Higher Education? _____

4 What is your tenure situation? O Non-tenure track O Non-tenured, tenure track O Tenured

5 What is your professorial rank? _____

6 What is your home department? _____

7 What percentage of your work time do you spend in undergraduate/graduate teaching functions (includes classroom teaching, developing courses and teaching materials, advising, coordinating undergraduate/graduate programs, and directing student research, thesis, dissertations, internships, and independent studies)

Undergraduate _____ %

Graduate _____ %

8 Do you have administrative responsibilities (e.g., Department Head, Associate/Assistant Dean) O No O Yes

9	How would you rate your international knowledge/expertise in comparison with that of the majority of your peers?	O very poor	O poor	O fair	O good	O very good
10	How would you rate your current participation in any kind of international activities in comparison with that of the majority of your peers?	O very low	O low	O average	O high	O very high

Several studies have quantified the relative value of different employee characteristics to prospective employers of agriculture college graduates, with varying results. Please indicate, from your perspective, the value of emphasizing each of the following in the undergraduate agricultural curriculum:

11	Interpersonal skills (e.g., leadership, management, teamwork)	O very low	O low	O average	O high	O very high
12	Problem solving, critical thinking, and analytical skills	O very low	O low	O average	O high	O very high
13	Communication skills (e.g., listening, verbalizing, presentation, professional writing)	O very low	O low	O average	O high	O very high
14	Technical competency (in the 'major' field of study) (e.g., crop/livestock production systems, food science, engineering technology)	O very low	O low	O average	O high	O very high
15	Computer skills (e.g., basic office packages, basic programming, internet use, database management)	O very low	O low	O average	O high	O very high
16	Prior work and/or internship experience	O very low	O low	O average	O high	O very high
17	International awareness and/or experience	O very low	O low	O average	O high	O very high

Many universities and/or colleges are including requirements in their undergraduate curriculum such as the ones listed below. Please indicate, from your perspective, the value of each of them:

18	Environmental literacy requirement	O very low	O low	O average	O high	O very high
19	Cultural diversity requirement	O very low	O low	O average	O high	O very high
20	International requirement	O very low	O low	O average	O high	O very high

21	Foreign language requirement	O very low	O low	O average	O high	O very high
22	Speech communication requirement	O very low	O low	O average	O high	O very high

Please answer the following questions about the internationalization of the agricultural curriculum:
(see definition of internationalization of the curriculum at the top of the questionnaire)

23	Are COALS graduates prepared to compete in the global job market?	O no	O not much	O neutral	O somewhat	O yes
24	Is COALS curriculum internationalized?	O no	O not much	O neutral	O somewhat	O yes
25	Do you think that further internationalization of the agricultural curriculum is necessary?	O no	O not much	O neutral	O somewhat	O yes
26	What has been your level of participation to date in efforts to internationalize the curriculum in comparison with that of the majority of your peers?	O very low	O low	O average	O high	O very high

Please indicate which of the following are "the best uses" of our resources (e.g., faculty time, personnel, funds) for the support of the internationalization of the curriculum:

27	Infusion: integrating internationalized lessons, readings, examples, case studies, activities, and/or perspectives into existing (regular) on-campus courses and programs	O least useful	O low use	O average	O high use	O most useful
28	On-campus, international subject matter courses	O least useful	O low use	O average	O high use	O most useful
29	Technology and virtual mobility: distance learning courses with foreign students, foreign universities, and resource people around the world	O least useful	O low use	O average	O high use	O most useful
30	International certificates, minors, and majors	O least useful	O low use	O average	O high use	O most useful
31	Short term study abroad courses: a cohort of students with Texas A&M faculty, 2-5 weeks abroad	O least useful	O low use	O average	O high use	O most useful
32	Cohort semester abroad: one semester at a foreign university, with Texas A&M faculty and students	O least useful	O low use	O average	O high use	O most useful
33	Semester exchange programs and internships: individualized programs at foreign universities or internship posts, without other Texas A&M faculty/students	O least useful	O low use	O average	O high use	O most useful
34	Internationalize campus environment: increase in number of international students and faculty, organization of workshops, discussions, and varied 'social' activities of international subject matter, etc.	O least useful	O low use	O average	O high use	O most useful

What is the effect (negative or positive) of each of the following on your participation in the internationalization of the curriculum?

35	Your personal interest (or lack thereof)	O negative	O somewhat negative	O neutral	O somewhat positive	O positive
36	Relevance (or lack thereof) to your job	O negative	O somewhat negative	O neutral	O somewhat positive	O positive
37	Student interest (or lack thereof) in internationalized curricula	O negative	O somewhat negative	O neutral	O somewhat positive	O positive
38	Your international knowledge/expertise (or lack thereof)	O negative	O somewhat negative	O neutral	O somewhat positive	O positive
39	Your ability (or lack thereof) to develop internationalized curricula (e.g., you may have the necessary international knowledge but you are not sure of how to use it effectively in your classes)	O negative	O somewhat negative	O neutral	O somewhat positive	O positive

40	Time available (or lack thereof) for curriculum development and internationalization efforts	O negative	O somewhat negative	O neutral	O somewhat positive	O positive
41	Support (or lack thereof) you receive from your department, college, or university administrations for internationalization efforts	O negative	O somewhat negative	O neutral	O somewhat positive	O positive

Please indicate how much the following could support you in your efforts to internationalize the courses and programs for which you are responsible

42	Release time from teaching (or other duties) for you to internationalize your curriculum	O not at all	O a little	O some	O much	O a great deal
43	Creation of an "internationalization support specialist" position in your college	O not at all	O a little	O some	O much	O a great deal
44	Collaboration with other faculty members	O not at all	O a little	O some	O much	O a great deal
45	Development and availability of internationalized instructional materials for you to choose from, adapt, and use in your classes	O not at all	O a little	O some	O much	O a great deal
46	Seminars and workshops to assist you in your curriculum development and internationalization efforts	O not at all	O a little	O some	O much	O a great deal
47	More funds for participation in international programs, sabbaticals, and other related professional development opportunities	O not at all	O a little	O some	O much	O a great deal
48	More funds to support curriculum development and internationalization for **on-campus** courses (e.g., infusion, international subject matter courses)	O not at all	O a little	O some	O much	O a great deal
49	More funds to support curriculum development and internationalization for **off-campus** courses (e.g., study abroad, exchange program)	O not at all	O a little	O some	O much	O a great deal
50	More support from the department, college, and university administrations for internationalization of the **agricultural** curriculum	O not at all	O a little	O some	O much	O a great deal
51	Including your participation in internationalization efforts in your evaluation process (salary increases, tenure, promotion)	O not at all	O a little	O some	O much	O a great deal
52	More funds to support **student** participation in internationalized programs	O not at all	O a little	O some	O much	O a great deal

Please answer briefly the following questions:

53 What, in your opinion, is the single most important reason why internationalization of the curriculum is or is not important?

54 What, in your opinion, is one effective way to internationalize the curriculum?

55 What would be the most attractive incentive for you to participate in the internationalization of the curriculum?

56 What, in your opinion, is the main reason why internationalization is or is not progressing?

Thank you for answering this questionnaire.
Please click the submit button at the end of the page.

If you would like to discuss further your perspectives about internationalizing the agricultural curriculum, I would appreciate the opportunity to meet with you. Please contact me.

Maria Navarro,
Department of Agricultural Leadership, Education, and Communication
University of Georgia
Four Towers Building, Athens, GA 30602-4355
Phone: (706) 583-0225, Fax: (706) 542 - 0262, e-mail: mnavarro@uga.edu

Submit

APPENDIX B

NOTE FROM ASSOCIATE DEANS OF ACADEMIC AFFAIRS

Note from Associate Dean of Academic Affairs (UGA-CAES)

Dear faculty member:

Toward planning efforts to advance the internationalization of the agricultural curriculum, we request your response to a survey on factors affecting participation of faculty in the internationalization of the undergraduate agricultural curriculum. The survey should take about 10 minutes to complete. The researcher, Maria Navarro, will contact you shortly via e-mail, asking you to participate in this study. Also, the survey can be found and completed on-line at http://www.uga.edu/alec/mnavarro/uga.html. Participation is completely voluntary, but much appreciated.

Thank you for your participation.

Note from Associate Dean for Academic Programs (TAMU-COALS)

Dear faculty member:

Toward planning efforts to advance the internationalization of the agricultural curriculum, we request your response to a survey on factors affecting participation of faculty in the internationalization of the undergraduate agricultural curriculum. The survey should take about 10 minutes to complete. The researchers, Maria Navarro and James E. Christiansen, will contact you shortly via e-mail, asking you to participate in this study. Also, the survey can be found and completed on-line at http://www.uga.edu/alec/mnavarro/tamu.html. Participation is completely voluntary, but much appreciated.

Than you for your participation.

APPENDIX C

COVER/CONSENT LETTERS (FIRST E-MAIL)

Dear faculty member:

As you have been previously informed by the office of the Associate Dean for Academic Affairs, I am contacting you asking for your help in a research project regarding the factors affecting participation of faculty in the internationalization of the undergraduate agricultural curriculum. I would appreciate it if you could respond to a survey http://www.uga.edu/alec/mnavarro/caes.html that should take about 10 minutes to complete.

Your answers will be kept strictly confidential, and your individual responses will be destroyed after analysis. In order to protect participants further, answers will be grouped and not reported individually. Also, the researcher will not intentionally track the electronic identification of respondents. Although we have employed security measures to protect the identity of the participants, there is still a limit to the confidentiality that can be guaranteed given the Internet technology itself.

In order for responses to represent accurately faculty views and foster sound decisions regarding efficient resource use, your feedback is important regardless of the level of priority that you associate with internationalization. Approximately 170 CAES faculty are being asked to respond to this questionnaire.

The survey can be completed on line at http://www.uga.edu/alec/mnavarro/caes.html. By clicking on the link and by filling out the questionnaire, you volunteer to participate in the study. Also, you may stop your participation at any time, just by closing the browser window. If you prefer to respond to the survey on paper, you may print it, and then mail it to me through campus mail (address below). If you have already responded to the survey, you should not do it again, and I thank you for your cooperation. To assure a high response rate, I will contact you again with a reminder e-mail.

If you have any questions regarding this research, please contact me by e-mail at mnavarro@uga.edu, or phone me at (706) 583 0225.

Thank you for your valuable contribution,

Maria Navarro
Department of Agricultural Leadership, Education, and Communication
University of Georgia
105 Four Towers Building
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Phone: (706) 583 0225 Fax: (706) 542 0262 e-mail: mnavarro@uga.edu

This research study has been reviewed and approved by the Institutional Review Board for Research Involving Human Subjects at both the University of Georgia and Texas A&M University. For questions or problems about your rights please call or write: Chris A. Joseph, Ph.D., Human Subjects Office, University of Georgia, 606A Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-6514; E-mail address IRB@uga.edu.

GO TO SURVEY:

http://www.uga.edu/alec/mnavarro/caes.html

Dear faculty member:

As you have been previously informed by Dr. Karen Kubena, Associate Dean of Academic Programs, we are contacting you asking for your help in a research project regarding the factors affecting participation of faculty in the internationalization of the undergraduate agricultural curriculum. We would appreciate it if you could respond to a survey (http://www.uga.edu/alec/mnavarro/coals.html) that should take about 10 minutes to complete.

Your answers will be kept strictly confidential, and your individual responses will be destroyed after analysis. In order to protect participants further, answers will be grouped and not reported individually. Also, the researchers will not intentionally track the electronic identification of respondents. Although we have employed security measures to protect the identity of the participants, there is still a limit to the confidentiality that can be guaranteed given the Internet technology itself.

In order for responses to represent accurately faculty views and foster sound decisions regarding efficient resource use, your feedback is important regardless of the level of priority that you associate with internationalization. Approximately 290 Texas A&M faculty are being asked to respond to this questionnaire.

The survey can be completed on line at http://www.uga.edu/alec/mnavarro/coals.html. By clicking on the link and by filling out the questionnaire, you volunteer to participate in the study. Also, you may stop your participation at any time, just by closing the browser window. If you prefer to respond to the survey on paper, you may print it, and then mail it to Dr. James E. Christiansen through campus mail (address below). If you have already responded to the survey, you should NOT do it again, and I thank you for your cooperation. To assure a high response rate, we will contact you again with a reminder e-mail.

If you have any questions regarding this research, please contact Maria Navarro by e-mail at mnavarro@uga.edu, or phone at (706) 583 0225.

Thank you for your valuable contribution,

Maria Navarro
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Professor and Coordinator of International Activities
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107D Scoates Hall
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Phone: (979) 862 3002
e-mail: j-christiansen@tamu.edu

This research study has been reviewed and approved by the Institutional Review Board for Research Involving Human Subjects at both the University of Georgia and Texas A&M University. For research-related problems or questions regarding subjects' rights, you may contact the Institutional Review Board through Dr. Michael W. Buckley, Director of Support Services, Office of Vice President for Research, Texas A&M University, at (979) 458 4067.

GO TO SURVEY:

http://www.uga.edu/alec/mnavarro/coals.html

APPENDIX D

REMINDER LETTERS (SECOND E-MAIL)

Dear faculty member:

Recently you received an e-mail asking for your participation in a research project regarding the “factors affecting participation of faculty in the internationalization of the undergraduate agricultural curriculum.” If you have completed the survey (http://www.uga.edu/alec/mnavarro/caes.html), I thank you for your cooperation. I sincerely appreciate your help! THANK YOU!

If you have not completed it, I am writing this e-mail as a friendly reminder to fill out the survey. The survey (http://www.uga.edu/alec/mnavarro/caes.html) only takes about 10 minutes to complete.

Your answers will be kept strictly confidential, and your individual responses will be destroyed after analysis. In order to protect participants further, answers will be grouped and not reported individually. Also, the researcher will not intentionally track the electronic identification of respondents. Although we have employed security measures to protect the identity of the participants, there is still a limit to the confidentiality that can be guaranteed given the Internet technology itself.

In order for responses to represent accurately faculty views and foster sound decisions regarding efficient resource use, your feedback is important regardless of the level of priority that you associate with internationalization. Approximately 170 CAES faculty are being asked to respond to this questionnaire.

The survey can be completed on line at http://www.uga.edu/alec/mnavarro/caes.html. By clicking on the link and by filling out the questionnaire, you volunteer to participate in the study. Also, you may stop your participation at any time, just by closing the browser window. If you prefer to respond to the survey on paper, you may print it, and then mail it to me through campus mail (address below). If you have already responded to the survey, you should **not** do it again, and I thank you for your cooperation.

If you have any questions regarding this research, please contact me by e-mail at mnavarro@uga.edu, or phone me at (706) 583 0225.

Thank you for your valuable contribution,

Maria Navarro
Department of Agricultural Leadership, Education, and Communication
University of Georgia
105 Four Towers Building
Athens, Georgia 30602-4355
Phone: (706) 583 0225 Fax: (706) 542 0262 e-mail: mnavarro@uga.edu

This research study has been reviewed and approved by the Institutional Review Board for Research Involving Human Subjects at both the University of Georgia and Texas A&M University. For questions or problems about your rights please call or write: Chris A. Joseph, Ph.D., Human Subjects Office, University of Georgia, 606A Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-6514; E-mail address IRB@uga.edu.

GO TO SURVEY:

http://www.uga.edu/alec/mnavarro/caes.html

Dear faculty member:

Recently you received an e-mail asking for your help in a research project regarding the "factors affecting participation of faculty in the internationalization of the undergraduate agricultural curriculum." If you have completed the survey (http://www.uga.edu/alec/mnavarro/coals.html), I thank you for your cooperation. This survey is central to my Ph.D. dissertation and I sincerely appreciate your help! THANK YOU!

If you have not completed it, I am writing this e-mail as a friendly reminder to fill out the survey. The survey (http://www.uga.edu/alec/mnavarro/coals.html) only takes about 10 minutes to complete.

Your answers will be kept strictly confidential, and your individual responses will be destroyed after analysis. In order to protect participants further, answers will be grouped and not reported individually. Also, the researchers will not intentionally track the electronic identification of respondents. Although we have employed security measures to protect the identity of the participants, there is still a limit to the confidentiality that can be guaranteed given the Internet technology itself.

In order for responses to represent accurately faculty views and foster sound decisions regarding efficient resource use, your feedback is important regardless of the level of priority that you associate with internationalization. Approximately 290 Texas A&M faculty are being asked to respond to this questionnaire.

By filling out the questionnaire, you volunteer to participate in the study. Also, you may stop your participation at any time, just by closing the browser window. If you prefer to respond to the survey on paper, you may print it, and then mail it to Dr. James E. Christiansen through campus mail (address below). If you have already responded to the survey, you should NOT do it again, and I thank you for your cooperation.

If you have any questions regarding this research, please contact Maria Navarro by e-mail at mnavarro@uga.edu, or phone at (706) 583 0225.

Thank you for your valuable contribution,

Maria Navarro
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GO TO SURVEY:

http://www.uga.edu/alec/mnavarro/coals.html

APPENDIX E

INTERVIEW GUIDE

Interview guide

Introductions. Give a brief overview of the research.
Review consent agreement. Ask permission to record interview. Sign consent letter. Give a copy to respondent.

Start interview:

Personal Information

- Describe your job responsibilities and participation in undergraduate programs;

Perspectives on curriculum and internationalization of the curriculum

- What should be the educational priorities for the undergraduate agricultural curriculum? How should it be delivered?
- What does internationalization of the curriculum mean to you? How important is it? Why is it or is it not important?
- What is the status of internationalization of the agricultural curriculum in your college? How is it happening? Who are the main contributors?
- How would you rate your international expertise? What kind of internationalization activities are you involved with and what would you like to be doing? Give examples.

Strategies for internationalization of the curriculum

- Review and discuss different strategies used for the internationalization of the curriculum.

Factors affecting faculty participation in the process of internationalization of the curriculum

- What are some factors that affect faculty participation in the process of internationalization of the curriculum? How? Why? Give examples;
- What strategies could aid faculty to be more active participants in the internationalization of the curriculum? Explain and give examples;
- What are other factors that affect the internationalization process?

Review and discuss some of the preliminary results from the questionnaires

Conclusion and plans for the future:

- Propose ideas, approaches, or solutions for the internationalization of the agricultural curriculum, with and without regard to cost, practicality, or feasibility. What would be, from your perspective, the ideal scenario?

Who might be an information-rich person to interview next?

Thanks. Please do not hesitate to contact me in the future.

APPENDIX F

INFORMED CONSENT (INTERVIEW)

Interview consent form

I, _____, agree to take part in a research study entitled “Factors affecting participation of faculty in the internationalization of the undergraduate agricultural curriculum,” which is being conducted by Maria Navarro, Department of Agricultural Leadership, Education, and Communication of the University of Georgia (phone: 706 - 583 0225) under the direction of Dr. James E. Christiansen, Department of Agricultural Education, Texas A&M University (phone: 979 - 862 3002). I do not have to take part in this study; I can stop taking part at any time without giving any reason, and without penalty. I can ask to have information related to me returned to me, removed from the research records, or destroyed.

The purpose of this study is to identify and analyze perceptions and factors affecting participation of faculty in the internationalization of the undergraduate curriculum in colleges of agriculture. Overall, about twenty faculty of the University of Georgia and Texas A&M University are being asked to participate in a similar interview.

I will not benefit directly from this research. However, my participation in this research may lead to information that could help understand better the internationalization of the curriculum and the factors affecting participation of faculty in the process. Also, it may contribute to the advancement of the internationalization of the undergraduate agricultural curriculum.

If I volunteer to take part in this study, I will be asked to participate in an interview that will take from 30 minutes to one hour, and I may be contacted in the future if any clarification is needed, or for member checks.

No stresses or risks are expected from my participation in the study.

The interviews are confidential, and results will be reported so that no specific individual or department will be identified by name. If I specifically agree, the interview will be audio-taped, and I will be allowed to review/edit the tapes. The transcripts and the tapes (if applicable) of the interview will be kept in a locked filing cabinet, and will be destroyed two years after the completion of the study. Transcripts and tapes (if applicable) will be coded and not labeled with my name. Only the researcher, Maria Navarro, her peer debriefer, and her Ph.D. committee members from Texas A&M University will have access to the interview transcripts.

The researcher, Maria Navarro, will answer any further questions about the research, now or during the course of the study, and can be reached by telephone at 706 - 583 0225.

I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study. I have been given a copy of this consent form.

_____

Signature of Participant Date

_____

Signature of Researcher Date

Maria Navarro
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For research-related problems or questions regarding subjects' rights, you may contact the Institutional Review Board through Dr. Michael W. Buckley, Director of Support Services, Office of Vice President for Research, Texas A&M University, at (979) 458 4067.

Additional questions or problems regarding your rights as a research participant should be addressed to Chris A. Joseph, Ph.D. Human Subjects Office, University of Georgia, 606A Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

VITA

Candidate: Maria Navarro

Permanent Address: 150 Timberland Trail, Arnoldsville, GA 30619

Degree: Doctor of Philosophy (Major Subject: Agricultural Education)

Dissertation Title: Analysis of Factors Affecting Participation of Faculty and Choice of Strategies for the Internationalization of the Undergraduate Agricultural Curriculum: The Case in Two Land Grant Universities.

Biographical

Personal Data: Born in Barcelona, Spain, 1966

Education:

1988: Agricultural Technical Engineering
Escola Superior d'Agricultura
Universitat Politècnica de Catalunya, Barcelona, Spain
Claudio Oliveras Award (#1 Rank in class)

1992: Agricultural Engineering
Escola Tècnica Superior d'Enginyeria Agrària
Universitat Politècnica de Catalunya, Lleida, Spain

2004: Doctor of Philosopy (Agricultural Education)
Texas A&M University, College Station, TX, USA

Professional Experience:

1991-1996: Coordinator of the Plant Production Area of the Mediterranean Agronomic Institute of Zaragoza, of the International Center for Advanced Mediterranean Agronomic Studies (CIHEAM-IAMZ).
Responsible for the organization, development, execution, evaluation, and follow-up of professional training programs and networks in the Mediterranean Region

1997-1998: Research and Teaching Assistant in forestry, genetics and agricultural education at Texas A&M University

1999-2004: Instructor at the Department of Agricultural Leadership, Education, and Communication of the University of Georgia, with teaching, research, outreach, and governance responsibilities

Language Skills:

Native languages: Spanish and Catalan
Excellent knowledge of English and French